

**REPORT OF THE COMMITTEE ON  
A ROAD MAP FOR THE CIVIL AVIATION  
SECTOR**

**PART II**

**Ministry of Civil Aviation  
Government of India  
October 2004**



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October , 2004.

Dear Mr Minister,

I have the honour to forward the report (Part-II) of the Committee appointed by the Ministry of Civil Aviation vide Order No.AV.13011/02/2003-DT dated 21/7/2003.

As indicated in my earlier letter of transmittal of November 28, 2003, we have gone into great detail into matters referred to the Committee which were not covered in Part-I of our Report. These cover issues relating to Administration of Airports, Regulation of Airlines, Flight Safety, Training, Airport Security and Amendment of Provisions of the Acts and Rules.

Yours sincerely,

  
(Naresh Chandra)

The Honourable  
Praful Patel,  
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"A customer is the most important visitor on our premises. He is not dependent on us. We are dependent on him. He is not an interruptor to our work. He is the purpose of it. He is not an outsider to our business. He is part of it. We are not doing him a favour by serving him. He is doing us a favour by giving us an opportunity to do so."

- Mahatma Gandhi



## LIST OF ACRONYMS

AAI	Airports Authority of India
ACC	Area Control Center
ADS	Automatic Dependent Surveillance
AERA	Aviation Economic Regulatory Authority
ALH	Advanced Light Helicopter
AME	Aircraft Maintenance Engineer
ASDE	Airport Surface Detection Equipment
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATF	Aviation Turbine Fuel
ATM	Air Traffic Management
ATS	Air Traffic Services
AVGAS	Aviation Gasoline Fuel
BAMEL	Basic Aircraft Maintenance Engineers
BCAS	Bureau of Civil Aviation Security
BSNL	Bharat Sanchar Nigam Limited
CARs	Civil Aviation Requirements
CISF	Central Industrial Security Force
CNS	Communication, Navigation, Surveillance
COSCA	Commissioner of Security, Civil Aviation
CPDLC	Controller Pilot Data Link Communication
CPL	Commercial Pilot's License
DGCA	Directorate General of Civil Aviation
DME	Distance Measuring Equipment
EASF	Essential Air Services Fund
EMARSSH	Europe-Middle East-Asia Route Structure South of Himalayas
FAA	Federal Aviation Administration
FDPS	Flight Data Processing System
FDTL	Flight Duty Time Limitations
FIC	Flight Information Centre
FIR	Flight Information Region
FL	Flight Level
GBAS	Ground Based Augmentation System
GPS	Global Positioning System
HF	High Frequency
HAL	Hindustan Aeronautics Limited
IAAI	International Airports Authority of India
ICAO	International Civil Aviation Organisation
IGRUA	Indira Gandhi Rashtriya Uran Academy
ILS	Instrument Landing System

IMD	Indian Meteorological Department
JAA	Joint Airworthiness Authority
MOCA	Ministry of Civil Aviation
MHA	Ministry of Home Affairs
MSSR	Monopulse Secondary Surveillance Radar
MTNL	Mahanagar Telephone Nigam Limited
NAA	National Airports Authority
NAL	National Aerospace Laboratory
NOC	No Objection Certificate
OFC	Optical Fibre Cable
OJT	On-the-Job-Training
PIC	Photo Identification Cards
PPL	Private Pilot's License
PWD	Public Works Department
RDPS	Radar Data Processing System
RNFC	Route Navigation Facility Charges
R/T	Radio Telephone
RVR	Runway Visual Range
RVSM	Reduced Vertical Separation Minima
SARPS	Standards and Recommended Practices
SBAS	Satellite Based Augmentation System
ToR	Terms of Reference
TORA	Take Off Run Available
US	United States of America
UT	Union Territory
VDL	VHF Data Link
VFR	Visual Flight Rules
VHF	Very High Frequency
VOR	Very High Frequency Omni Range
VSAT	Very Small Aperture Terminal

This Committee was set up by the Ministry of Civil Aviation to prepare a road map for developing a world-class civil aviation sector capable of meeting the requirements of a rapidly growing and modernizing continental size economy. The Terms of Reference to the Committee are detailed in Appendix 1. The broad context of the Committee's exercise and the perspectives envisioned by it were given in the introductory Chapter of Part-I of the Committee's Report. (This is given at Annex 1 to the present volume for ready reference).

Recommendations covering a broad sweep of policy issues had been made in Part-I of the Report (These are included in Annex 2 of this volume). The Committee notes with satisfaction that the Government has already taken some steps in line with these recommendations. The Excise Duty on Aviation Turbine Fuel (ATF) has been reduced, Inland Air Travel Tax and Foreign Travel Tax have been abolished, Landing and Route Navigation Facility Charges (RNFC) have been lowered, Charter Policy has been liberalized and the process of restructuring Delhi and Mumbai International Airports has been initiated.

On the other hand, the Committee notes with concern <sup>11</sup> that the Government has now decided to withdraw the exemption from tax on remittance of lease rental of aircraft with effect from April, 2005. The Committee feels that this measure would act as a disincentive for plans to set up regional airlines to connect small towns. Air connectivity to small towns, especially those of touristic importance, should be a major thrust area in the coming years. Typically, these regional airlines would be small operations using small aircraft taken on lease. The Committee, therefore, recommends that the exemption from tax should not be discontinued.

The Committee would like to reiterate that all new initiatives in the Civil Aviation sector should be formulated giving the highest priority to the needs of the traveling public and other users. This would mean lowering the costs, encouraging competition, eliminating the hassles at airports consistently with the need of ensuring safety and security. It is well recognized now that in a modern economy air travel is not an elitist luxury but an essential requirement for conduct of efficient business and commerce. The multiplier effects of an efficient civil aviation sector can be tremendous.

In his address on the occasion of JRD Tata Birth Centenary in August 2004, the Hon'ble Prime Minister observed as follows:

"The trend of globalization is an irreversible one. We cannot shy away from it. We must prepare ourselves for greater integration with the evolving world economy..... To enable this we must create world-class infrastructure. Over a decade after we first launched economic reforms, we still cannot say we are proud of our roads, our airports, our sea ports, our power supply, our railways, our urban infrastructure. There has been a gross neglect of the basic infrastructure of modern industrial development. This we are committed to reversing. In each of these areas we require public-private partnerships.

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The public sector alone cannot deliver what is required in a timely and competitive manner. Hence the importance of such partnership.”

On several other occasions also the Hon'ble Prime Minister has been emphasizing the need to give a push to the development of transport infrastructure including aviation infrastructure in the country. The Committee hopes that the work done by it will be of help to the Government in developing policy initiatives and action plans for achieving this objective.

In this Report (Part-II), the Committee has focused its attention on issues of detail pertaining to training, aviation security, safety regulation, legal framework and airport infrastructure. It is felt that expeditious action in addressing these issues decisively will have beneficial consequences for the expansion of the civil aviation sector.

During the course of its deliberations, the Committee has relied extensively on consultations with representatives of stakeholders and experts. The relevant list is given in Appendix 2. The Committee would like to thank each of them for their valuable inputs. The recommendations of other committees who had examined some of these issues have been updated and included in appropriate places in the report.

This report is organized in 5 Chapters. The next chapter (Chapter-2) addresses issues pertaining to the training of engineers and pilots and the role of the Indira Gandhi Rashtriya Uran Academy (IGRUA). Chapter 3 emphasises the need for a new Civil Aviation Security Act and delineates measures needed for improving coordination among various agencies involved in the provision of aviation security and for streamlining the procedures for immigration and customs clearance. Chapter 4 espouses the need for enhancing safety regulation by strengthening and appropriately restructuring the Directorate General of Civil Aviation (DGCA) in order to enable it to take up effective monitoring of the CNS/ATM and Flight Calibration and carrying out certain amendments to the Aircraft Act 1934 (for licensing Air Traffic Controllers), Aircraft Rules 1937 and other Regulations. Chapter 5 highlights the need and scope for enhancing Airspace capacity, operational capabilities of Delhi and Mumbai airports and Communication, Navigation & Surveillance capacities. In addition, it suggests measures for the development of Heliports & Helipads, Cargo Operations and indigenous aeronautical products.

The Committee has also noted the recent upswing in the fortunes of the civil aviation sector all over the world, after the sudden-down turn in air traffic after 11th September, 2001. Many Governments and Airlines have, therefore, finalized plans for substantial investments into upgrading their civil aviation infrastructure, augmenting the airline's fleet and going in for an aggressive campaign to gain a larger share of the market. The Committee anticipates that the Indian civil aviation system including our airlines, would face increasing competition from places near our shores, for example Dubai, Singapore, Kuala Lumpur, Colombo to name a few. Reports also indicate of substantial expansion of the airlines' fleet in China and Japan as well. In the Committee's view, a bold and pragmatic approach by all the concerned interests in India is essential to withstand this competition. We see no reason why the Indian civil aviation system cannot be among the best in Asia. While infrastructure indeed is a limiting factor, lack

of capacity to and from India is yet another major constraint. In order to ameliorate this condition, the Committee would like to urge the government to expedite liberalisation of air transport services, beginning with allowing domestic airlines to utilise the unused entitlements in the present air services agreements, especially with regard to all destinations with high traffic.

Availability of well-trained technical manpower such as engineers and pilots is a critical pre-requisite for a vibrant aviation sector. During the course of its deliberations, the Committee was given to understand that several institutes engaged in imparting training to would-be engineers and pilots are facing a wide array of difficulties. This Chapter suggests measures for alleviating the hardships of public and private institutes engaged in aviation-related training.

### 2.1 Engineers

To ensure high standards of training, only institutes approved by the DGCA are allowed to impart training for aircraft maintenance engineers. After a candidate passes three basic papers, DGCA grants the Basic Aircraft Maintenance Engineers License (BAMEL). Thereafter, the candidate gets training on specific aircraft. On gaining the necessary experience, the candidate obtains the license for a specific type of aircraft.

During the course of deliberations of this Committee, representatives of the training institutes pointed to a number of difficulties faced by them, which need to be looked into by DGCA and the Ministry of Civil Aviation. Some of the issues raised by the representatives are discussed below.

For a long time, the main problem of the training institutes has been the non-availability of On-the-Job-Training (OJT) facilities for their students. To overcome this problem, DGCA had issued a circular in August 1993 to the major operators at the time, viz. Indian Airlines, Air India and Pawan Hans to give OJT to specified number of trainees every six months in the maintenance of aircraft/helicopters operated by them. All the operators have not reportedly heeded the instruction even though it appears to be in their long-term interest. The representatives of the institutes were unanimous in the view that the Ministry/ DGCA should make it mandatory for the approved maintenance organisations and the scheduled operators to allow students to undergo OJT in their organisations. This suggestion makes sense. The number of trainees to be taken by an operator could be fixed in proportion to the strength of the fleet operated by them, say one trainee per aircraft/helicopter. (Merit in the DGCA examination could be the criteria for selection.) This will go a long way not only in resolving the OJT problem, but will also help in improving the quality of Aircraft Maintenance Engineer (AME) training.

The industry representatives also pointed out that some of the scheduled airlines have now started providing ab initio AME training to their graduate engineers for converting them to licensed maintenance engineers. The graduate engineers were earlier recruited for the Quality Control divisions, and were not required to have AME license. However, they are now being converted as licensed engineers, for which the operators themselves are giving the basic training even for acquiring BAMEL. This is a time consuming and very expensive process as BAMEL holders are available in the market at no cost to the airlines. In their view, the airlines



should take BAMEL-holders passing out of the DGCA-approved AME training institutes and convert them on the type of aircraft/helicopter operated by them. While it is the prerogative of an airline to recruit personnel from any source they consider suitable, the point made by the training institutes has merit and deserves to be considered by the ministry/DGCA in the long-term interest of the aviation industry.

All non-certifying technical personnel assisting engineers or approved personnel in the aircraft maintenance work should preferably have undergone the approved training course. The candidates who have successfully completed the training programme in the training institutes, could be considered for this purpose. DGCA has also issued a circular recommending that technicians be chosen from among those who are trained and qualified on the aircraft maintenance work. BAMEL-holders may be given priority for job opportunities in the engineering maintenance organisation of the aviation industry. This will attract the more intelligent and brighter students to join the aviation engineering which will in long run raise the standard of maintenance and airworthiness and thereby the level of safety in aviation.

There is also a need for better co-ordination between the airlines and the training institutes. While the training institutes need to better understand the requirements of the airlines, the airlines also have to provide necessary feedback and advice to the training institutes to improve the quality of training. There needs to be a platform that initiates interaction between the two for resolving issues. DGCA could play a key role in this regard.

## **2.2 Pilots**

Pilots, as a class, are one of the key pillars of the aviation industry. Despite this, institutes that impart training to would-be pilots are often found to be increasingly coming under stress, on account of a variety of factors including high fuel costs and inadequate access to the appropriate type of trainer aircraft. Discussions with the representatives of the flying training institutes revealed that the following measures would help the training institutes acquire sustainability.

- (1) The Aviation Gasoline fuel commonly known as AVGAS, used by training aircraft (piston engine aircraft), is nearly four times as expensive as the Aviation Turbine Fuel (ATF) used by the turbine engine aircraft. This puts pressure on training cost. Considering that the fuel consumed by the flying training institutes accounts for a small fraction of total fuel used for air transport purposes, a substantial cut in AVGAS price would entail insignificant subsidy, while making training costs competitive. (The flying training activity used to be subsidised earlier. The subsidy has been withdrawn since April 2002.)
- (2) DGCA also used to provide to the flying clubs a number of trainer aircraft, which has been scaled down considerably. This trend needs to be reversed. The Ministry of Civil Aviation/DGCA should provide capital grant in terms of trainer aircraft to the operational institutes.

- (3) Training institutes have limited capability to provide twin engine training mainly because of the high cost of acquiring such aircraft, even though all airlines (appropriately) insist on multiple engine aircraft rating for recruitment of pilots for the sake of safety. Many pilots go abroad to acquire this rating. The government/DGCA should therefore provide twin-engine aircraft to at least five selected training institutes located in different regions of the country, which may be developed as premier regional training institutes. These institutes may also be provided with multi engine procedure trainers, to enhance the flying training standards.
- (4) Support of Airports Authority of India (AAI) is critical to the survival of these institutes. The AAI should continue to charge nominal rent for the hangars. The training activities should be totally exempt from the RNFC and landing and parking charges. Extension of watch hours should be granted, particularly for night flying, without extra charges. All these would help the air transport operations to grow in the long run and AAI will benefit from this.
- (5) In case of training institutes, the DGCA/Ministry could waive the charge of Rs. 25,000 for grant of non-scheduled operator permit and extend the validity of the permit to five years as against one year at present. Further, DGCA should conduct regular flying instructors' initial and refresher courses at IGRUA to meet the requirement of qualified instructors in the country.
- (6) To improve the quality of training for grant of commercial pilot license, only high standard institutes having facilities for imparting ground training and night flying should be allowed.
- (7) The procedure for import of aircraft parts needs to be simplified. Parts listed in the aircraft manufacturers' parts catalogue or certified by the DGCA as aircraft parts should be cleared by customs as aircraft parts.

### **2.3 IGRUA**

The Indira Gandhi Rashtriya Uran Academy (IGRUA) located at Furlatganj, Dist. Rae Bareilly, UP was set up in 1985 as an autonomous body under the Ministry of Civil Aviation to improve the standard of flying training in the country. The apex body of the Academy is the Governing Council, which is headed by the Secretary, Ministry of Civil Aviation. The Academy is equipped with modern and sophisticated trainer aircraft, flight simulators and other training aids. It also has an independent and dedicated runway of 1722 meters length with its own Air Traffic Control (ATC) and fire fighting facilities, dedicated airspace for flying, refueling station, two fully closable hangars for housing aircraft and maintenance work.

The Academy is a fully residential institution comprising the administrative block, classrooms, simulator building, 72-room hostel accommodation and 88 houses for the employees. It offers the following courses:

- i) Private Pilot's License (PPL) Course



- ii) Commercial Pilot's License (CPL) Course
- iii) Commercial Helicopter Pilot's License Course
- iv) Instrument Rating Course

More than 400 pilots have been trained so far at the Academy, including about 40 foreign nationals. The Academy has also carried out multi-engine training for more than one hundred non-institutional trainees.

### **2.3.1 Financial Resources**

IGRUA is a non-profit organisation, supported by grants-in-aid from the Central Government (50%), Air India (25%) and Indian Airlines (25%). AAI has also given occasional grants to IGRUA. The annual budgetary requirement of IGRUA has been increasing over time and is currently about Rs.10 crores. The two national carriers have been bearing the financial burden of supporting IGRUA, although the private operators also benefit from IGRUA by way of getting high quality trained pilots. It would, therefore, be appropriate that the financial burden of IGRUA is borne by the private operators as well. In this respect, some norms for contribution should be evolved – for example, a fixed percentage say 0.01 % of their annual revenue or rupees one lakh per aircraft in their fleet – to meet the IGRUA expenses. Contribution towards IGRUA expenses would be in the long-term self-interest of airlines, as they will get an assured number of high quality trained pilots. To have transparency in the working of the Academy, nominees of the donor airlines may be included in its Governing Council.

A major factor contributing to the weak financial health of the organisation is that the fee charged from the trainees falls far short of the cost of training. For example, the cost of training from PPL to CPL is about Rs. 30 lakhs whereas the fee charged is only Rs.10 lakhs. The high cost of training is mainly due to the use of heavier and more powerful TB 20 aircraft (even for the ab initio training) and steep rise in the AVGAS fuel price. In the long run, the IGRUA should induct light sophisticated trainer aircraft to reduce the cost of training (IGRUA is reportedly planning to induct Zlin 242 L aircraft to reduce the cost). At the same time, IGRUA should move towards full cost recovery from the trainees.

### **2.3.2 Future Scope for Expansion of Activities**

IGRUA has the potential to reduce its costs by increasing the utilisation of its existing infrastructure and facilities. It has a number of well-equipped maintenance shops, which can be used by the aircraft operators (particularly the non-scheduled operators) who do not have their own facilities. Since IGRUA has sound maintenance facilities for King Air aircraft, it should undertake major maintenance work of these aircraft, which are owned today by State Governments, corporate houses and operators.

While there is a strong demand for qualified and trained flying instructors at the training institutes in the country, the IGRUA is the only institute that can provide quality training. One of the major weaknesses in the flying training provided by the other training

institutes in the country is the poor standard of Instrument Flying. There is hardly any capability at these institutes to provide ground classes to the students. IGRUA should take a lead in this direction and provide regular Instrument Rating courses. DGCA should develop the course structure for IGRUA. This will go a long way towards improving the quality of flying training in the country. The expenses for these courses should be borne by the DGCA in the interest of the development of aviation in the country.

There are no facilities available in the country to provide recurrent refresher courses to pilots belonging to general aviation, state governments, corporates and non-scheduled operators. There is considerable demand for this activity, which can be exploited by IGRUA by running periodic and structured refresher courses.

Currently, pilots holding CPL on piston engine aircraft are recruited by the airlines as co-pilots for their jet engine aircraft, which involves a big leap in the technology of the aircraft. The transition requires considerable time and effort for the pilots. This is so, because there are no small jet aircraft available in the country for training of pilots and small private training institutes find it difficult to provide jet aircraft training in view of high investments involved. IGRUA should explore ways to fill this gap in the training infrastructure.

Until recently, availability of helicopter pilots in the country had been limited to the pilots who retired from the defence services as there was no training institute to provide helicopter pilot training. IGRUA used to provide helicopter training but stopped this activity sometime back. Only recently, Hindustan Aeronautics Limited (HAL), Bangalore has started training for would-be helicopter pilots. Since helicopter activity in the country is increasing fast, the country should have adequate training facilities to meet the needs of this industry. IGRUA should consider restarting training of helicopter pilots. This would also attract trainees from the neighbouring countries, where the availability of this facility is limited. IGRUA should also provide refresher training to helicopter pilots for which there is no facility in the country at present.

### **2.3.3 Commercialisation of IGRUA**

IGRUA is currently heavily dependent on the grants (given by the Central Government and the national carriers). This may not be sustainable. There are a number of high quality training institutes elsewhere in the world which are functioning on commercial basis. It is therefore both necessary and feasible to operate IGRUA on a commercial basis in the long run, possibly as a joint venture organisation in partnership with some reputed agency. IGRUA has the potential to become a premier training institute in the Asian region. The restrictions imposed by the US, after the events of September 11, on training of pilots in the US have created considerable scope for such training outside the US. This situation could be exploited by IGRUA. IGRUA has been providing training to foreign nationals also. The foreign trainees are required to undergo security clearance before they receive flying training. It reportedly takes considerable time to obtain the security clearance, forcing the trainees in many cases to go to other countries such as Australia. While security is of key importance and may not be compromised, the procedures could be streamlined to reduce the delay. Assistance in this process can be taken from India's embassies and High Commissions.

The security problems and challenges at the Indian airports emanate from a number of factors. To begin with, the civil aviation sector by the very nature of its activities is vulnerable to terrorist actions. The problem is compounded by the fact that security has to be ensured in a commercial ambience, implying that security needs to be provided as a part of facilitation process for passengers and cargo. Secondly, in India, security functions in some airports are still divided among the State/Union Territory (UT) police, Central Industrial Security Force (CISF), AAI and the airlines. As a result, no single agency is directly accountable for overall security. Thirdly, the aviation security procedures have to conform to certain agreed international norms. Achieving such conformity under Indian conditions is often a challenge. Finally, there is a lack of clarity regarding the prioritisation of different security needs and establishing accountability for meeting those needs. For example, although protecting airport property is in the airports' commercial self-interest, securing the airports' perimeter wall can be considered as a part of national security, just as anti-hijacking and screening of passengers. Here, it is noteworthy that the Committee in its earlier report recommended that aviation and airport security, being sovereign responsibilities, should be taken over and funded by the government.

### **3.1 General Security measures**

To address the challenges facing the aviation sector, the following measures have been recommended.

- (1) In view of the perception regarding unsatisfactory performance of the State / UT Police, the induction of CISF to replace them in anti-hijacking and perimeter security duties is expected to provide better and uniform services all over the country. Deployment of CISF is, however, more expensive than local police. Airports in remote areas, except sensitive airports, with hardly 1 or 2 flights a day may, therefore, continue to have local police for security. Given the CISF's background, the following initiatives need to be taken to make the CISF more effective:
  - a) All sensitive security jobs including anti-hijacking measures should be handled by officer-level functionaries of CISF;
  - b) Stability of cadre should be ensured by requiring the CISF personnel imparted with aviation security training to serve a specified period of time before they are reverted to other CISF functions.
  - c) Establishment of an effective and relevant training regime; and
  - d) Passenger-friendly uniforms to be given for airport units of CISF except for the personnel on guard duty.
- (2) Considering the importance of training in achieving high level of professionalism and

the current inadequacy of the training facilities, a regular Civil Aviation Training Academy under the aegis of Bureau of Civil Aviation Society (BCAS) should be set up. It should be provided with adequate staff and infrastructure to train and sensitise the CISF personnel and others involved in airport and airline operations.

- (3) The process of issuing Photo Identification Cards (PICs) to regulate entry into the airport is beset with a number of problems, including that of shortage of infrastructure, complaints of delay, large number of entitlements and retrieval of lapsed PICs. The Committee recommends the following.
- a) The entitlements to permanent PICs be reviewed periodically and its numbers may be reduced as much as possible. As a matter of prudent practice, activities in the airport should be organised in a manner that reduces the man power requirement as much as possible. For example, grass-cutting could be mechanized.
  - b) Efforts be made to streamline the issuance of daily passes to visitors on the lines in Ministry of Home Affairs (MHA) and its numbers to be reduced to the minimum possible;
  - c) To overcome problems of delay at domestic airports, temporary passes may be issued by the Airport Director as in the past. (The BCAS may lay down the norms for the same. Considering the inadequacy of the staff and balance of convenience, the validity of temporary passes may be extended from 15 days to 2 months but the number of such passes should be kept to the minimum);
  - d) Resource crunch of the BCAS, which is authorised to issue PIC, needs to be removed, as it is leading to delays. There is also a need to open more offices of the BCAS in different parts of the country;
  - e) Daily token passes for workers and labour employed at international airports may be issued by the Airport Directors even for more than three days if it becomes absolutely essential;
  - f) The retrieval of expired passes is a serious problem and BCAS may issue the regulations to make the sponsors responsible for the retrieval of such PICs.
- (4) The complaint regarding harassment of tourists and passengers outside the terminal building by taxi and hotel operators and their agents, has defied solution for long. One of the reasons is the duality of control. Although there is usually a vast area on the city-side outside the terminal, it is the local police – and not the airport security – who have jurisdiction over that area. It is recommended that the Airport Security Police / CISF should have jurisdiction over the areas in the immediate vicinity of the terminal buildings and that they may be given limited police powers under The Police Act for this purpose.
- (5) On-line baggage screening has to be introduced at all airports as per the ICAO guidelines. At least, in all international and hyper-sensitive airports, this should be done



as soon as possible, in any case within one year. Pending introduction of online x-ray of registered baggage the following interim measures are recommended to overcome the security gap resulting from check-in-baggage being in possession of a passenger even after the X-ray:

- a) the airlines concerned should take charge of the check-in baggage after it is X-rayed; or
  - b) the X-ray machines be placed very near the check-in counters to reduce chances of mischief;
- (6) The catering items going into the aircraft constitute a vulnerable link in the security chain. It is recommended that the monitoring and execution aspects of security arrangements in this respect be further tightened. If required, the security procedures of the catering establishments be vetted, approved and monitored by the BCAS. Only agencies certified by the BCAS should be allowed to take up this work. For this purpose, norms should be laid down by the BCAS.
  - (7) The security regime for cargo and courier items carried by a passenger aircraft is not as strict as in the case of passengers and their baggage. The Committee feels that the implementation of security procedures in respect of these items needs to be enforced strictly and monitored closely.
  - (8) For recruitment and training of the airlines security staff, the required strict standard is not being maintained and consequently the level of their performance is not up to the mark. It is, therefore, recommended that all the airlines security staff should be certified by the BCAS for their professional competency in aviation security procedures.
  - (9) To ensure better discipline, all the personnel including security personnel working within the terminal building and its vicinity, should be required to wear PIC and identity tags.
  - (10) The latest available technologies should be adopted, irrespective of their cost, to improve security at all international and hypersensitive airports, especially for electronic perimeter surveillance access control with smart cards having biometric features and online x-ray of baggage.

### **3.2 Need for a Civil Aviation Security Act**

Civil aviation security on the ground and in the air is seen as a matter of grave concern in the world in the context of the growing threat of international terrorism. At present there is no effective legal framework in India to tackle this. The Aircraft Act does not have specific provisions to deal with this. Though the Bureau of Civil Aviation Security has been set up as the security regulator, it has been done without any statutory underpinning. There is an urgent need to review this and enact a new Civil Aviation Security Act that will not only give statutory status to the BCAS but also prescribe deterrent punishment for specific offences relating to civil aviation security and summary procedures for quick disposal of these cases. The decision to

allow airports to be set up by agencies other than the AAI has added to the urgency since security at these privately- owned airports also will continue to be the sovereign responsibility of the Government.

### **3.3 Issues relating to Immigration and Customs**

Despite efforts to facilitate the entry of tourists into the country, the issue of visas in the Missions abroad and the immigration procedures in Indian Airports leaves a lot to be desired. Functioning of immigration counters is generally inefficient and slow. Often times, passengers are subjected to delay, harassment and rude behaviour in the name of security. To address these issues the following measures are recommended.

- (1) The Committee in its earlier report emphasised the need to start issuing only machine-readable passports and to convert all existing passports into machine readable ones within a specified period. The Committee has been given to understand that while the system of issuing machine readable passports has been implemented in Passport Offices in India, it would not be possible to introduce the same in all the Indian Missions abroad, who also issue passports to Indian citizens living in other countries and visiting Indians in cases of emergencies. The Committee is of the view that it should not be difficult to install the facility for issuing machine-readable passports in all the important Indian Missions where a large number of passports are issued. Other Missions should be authorised to issue only passports with limited validity period and these passport holders should be required to obtain regular passports from Passport Offices in India. In any case, all immigration counters should be equipped as an interim measure, with scanners (to process passports) so as to eliminate the time taken in visual scanning and keying in of information. This is a low cost alternative to replace the present system of keying in manually.
- (2) Officials of the Ministry of Home Affairs and Intelligence Bureau indicated that efforts are being made to combine police and civilian personnel on immigration counters and to impart adequate training to them. While it is desirable to have a mix of personnel from the Intelligence Bureau, Central Police Organisations, State Police and other organisations, it is imperative to give appropriate training to all such personnel to ensure a uniform, tourist-friendly approach. It is also suggested that the MHA take up the task of putting in place a dedicated cadre of courteous and computer-savvy personnel for handling immigration at international airports.
- (3) Doubts have been raised about the exact use to which the immigration forms (that are filled in by the arriving passengers) are put. While the forms have been revised recently to call for only limited information, there is still considerable scope for further simplification. It is recommended that a further review be undertaken by the MHA and other user-agencies taking the passengers' perspectives into account.
- (4) Currently, arriving and departing passengers have to stand in long queues for immigration clearance. In most countries, their own nationals returning home are not required to fill up any disembarkation card and have only to show their passports at a

separate counter. This system should be adopted in India also. For the arriving foreign nationals, many countries have introduced a system of stapling one portion of the disembarkation card to the passports which is taken away by the airlines at the time of departure and deposited with the immigration authorities. If this is done, there can be a separate counter for the departing foreign nationals. Only the departing Indian nationals will have to fill up the embarkation card and go through the elaborate immigration scrutiny meant to prevent any "wanted" person from fleeing the country.

- (5) One of the reasons ascribed for long delays at the immigration counters is that the arriving and departing passengers have to be screened on the basis of 'look-out' notices. Requests for adding names to this list are received from sundry offices. However, since these notices are not updated periodically, the staff are required to screen passengers using a long list of notices. It is essential to introduce a system of regular review of 'look-out' notices at airports and to ensure that the list includes the names of only terrorists and persons involved in heinous crime.
- (6) Developed countries have adopted new methods of issuing visas to ensure easy and fast completion of immigration formalities. In a few countries such as Australia, for example, electronic visa is issued along with the tickets. A team of MHA officials had seen and appreciated an Advance Passenger Information System in Australia which expedites processing of information relating to visitors ahead of their arrival. With the advancement in information technology, it should not be difficult to introduce a similar system in India too.
- (7) Many countries including some in Asia provide swipe cards – either biometrics or smart cards – to those who are willing to pay for it so that they can go through a separate fast track channel. This should be introduced in India also.
- (8) With the lowering of import duties and liberalisation of the import control regime normal passengers have little incentive now to carry goods beyond the permissible limit. Hence the only contraband to check are drugs. This cannot be detected by x-ray machines. Yet every arriving passenger is required to get the hand baggage x-rayed and x-ray machines are installed on the baggage belts of the arrival hall. This only enhances the risk of theft because the x-ray shows which baggage contains valuable items. The practice of 100% x-raying of registered and hand baggage of arriving passengers should be done away with.
- (9) A high level decision had been taken long ago to do away with customs check of departing passengers but it has not yet been implemented. There is no justification for continuing this.
- (10) At present, facilitation-related issues are addressed through a co-ordination committee, chaired by DGCA. This Committee, which currently meets once in a year, should meet more frequently to sort out all operational issues. Important inter-ministerial issues which are not sorted out at DGCA level should be referred to a National Facilitation Committee to be constituted under the chairmanship of Cabinet Secretary with Secretaries of Home, Revenue, Commerce, Tourism and Civil Aviation as Members.

## **4.1 Restructuring of DGCA**

### **4.1.1 The Current Set-up**

The DGCA is the main government body to carry out enforcement of aviation safety regulations in the country as envisaged in the Aircraft Act and the Aircraft Rules. Prior to 1972, DGCA was also the owner and operator of aerodromes and Air Traffic Services (ATS) besides being the safety regulator. DGCA structure then comprised the Directorates of Aeronautical Inspection (now called Airworthiness), Aerodromes, Communications, Licensing & Training, Air Transport and Regulation & Information.

In 1972, the International Airports Authority of India (IAAI) was formed and it took over the four international airports at Delhi, Mumbai, Chennai and Kolkata. In 1986, the National Airports Authority (NAA) was formed and the remaining domestic airports and the ATS were brought under its control. Besides the functions of aerodromes and ATS, the related manpower and infrastructure of the Aerodrome and Communication Directorates of DGCA were taken over by the NAA (now AAI).

Indian Meteorological Department (IMD), which was part of the Ministry of Civil Aviation till the seventies, provides meteorological services to air transport operations. IMD is now under the Ministry of Science & Technology.

The DGCA is primarily the regulatory authority for aviation safety regulations and comprises the Directorates of Airworthiness, Flight Inspection, Aerodrome Standards, Flight Crew Training and Licensing, Air Transport, Regulation & Information, Air Safety and Research & Development. The Air Safety Directorate was created in 1971 after a major accident involving a Boeing 737 aircraft of Indian Airlines while the Aerodrome Standards and Flight Inspection Directorates were created in the wake of the repeal of the Air Corporations Act and the advent of private airlines.

### **4.1.2 Today's Aviation Scenario**

Over the last decade, there has been a vast growth in size, scope and complexity of the civil aviation sector. This has necessitated an enhancement of the scope and functioning of the regulator.

As per the Air Corporations Act 1953, Indian Airlines was the only scheduled air transport services operator in the domestic sector and the neighbouring countries while Air India was India's Flag Carrier operating on international routes. The Air Corporations Act was repealed in 1994 paving the way for opening up domestic air transport services to private sector.

Till 1985, Air Traffic Controllers being employees of government (DGCA) were not

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required to be licensed. After the formation of Airports Authority of India (AAI), however, ATS has been transferred to AAI. As per ICAO's Annex 1, Air Traffic Controllers are now required to be licensed by the State. This responsibility needs to be delegated to the DGCA under the Aircraft Act. This may need an amendment of the Act.

Similarly, Annex 14 of ICAO requires licensing/certification of aerodromes and surveillance over the safety aspects of airport infrastructure and the air navigation facilities and systems by the State. Presently, DGCA issues licence for operation of private airports. This needs to be extended to AAI airports also.

Flight calibration of navigational equipment is presently carried out by the AAI. In accordance with international practice, this function needs to be exercised by the independent regulatory authority, i.e., the DGCA. Since flight calibration requires extensive infrastructure, DGCA may be allowed to engage the services of external agencies. There are many such agencies operating internationally.

ICAO plans are under way to replace all the ground-based communication and navigation systems with Satellite-based Communication, Navigation, Surveillance (CNS) and Air Traffic Management (ATM) systems. In this connection AAI, in association with ISRO, is developing a sophisticated Satellite Based Augmentation System (SBAS) called GAGAN for use of GPS signals. Before these new systems can be put into use by the operators, they are required to be certified to ensure that they meet the required safety standards. Subsequently the systems will be required to be kept under continuous surveillance to ensure their continued capability. Accordingly, powers need to be delegated to the DGCA under the Aircraft Rules for carrying out the certification and surveillance of these new systems.

#### **4.1.3 Suggested measures and Restructuring of DGCA**

In view of today's aviation scenario, as outlined in the previous section, the following measures may be taken.

- (1) Licensing of Air Traffic Controllers by the DGCA: The responsibility of licensing of ATCOs may be vested with DGCA. Aircraft Act may be amended to provide for this.
- (2) Surveillance of aerodromes including air navigation facilities and systems by DGCA: Necessary provision should be made in the Aircraft Rules to enable DGCA to undertake surveillance of licensed aerodromes including the air navigation facilities and systems. Flight Calibration should be carried out by DGCA. If need be, independent external agencies may be engaged by DGCA for this.
- (3) Certification and surveillance of Satellite Based Augmentation System (SBAS) by DGCA: Necessary provision in the Aircraft Rule needs to be made.
- (4) Reorganisation of DGCA directorates:

DGCA may be reorganized to have the following directorates

- (i) Airworthiness Directorate

(ii) Flight Inspection Directorate

The existing Flight Inspection Directorate should be strengthened/ re-organised and renamed as Flight Standards Directorate with the following divisions-

- a) Air operator surveillance
- b) General aviation & helicopter operations, and flying training surveillance
- c) Flight Crew Training and Licensing (The existing Training and Licensing Directorate should be made part of this new division.)

iii) Air Navigation and Aerodrome Standards Directorate

The existing Aerodrome Standards Directorate should be re-organised as "Air Navigation and Aerodrome Standards Directorate" with the following separate Divisions-

- a) Licensing, Certification and Surveillance of Aerodromes including safety oversight of air traffic control activities and various aerodrome facilities (Aerodrome Standards Division)
- b) Certification and surveillance of CNS/ ATM equipment, facilities and systems (Air Navigation Systems Division) including Flight Calibration
- c) Air Traffic Controller (ATCO) licensing (ATCO Licensing Division)

iv) Air Transport Directorate

This Directorate may have separate divisions for the following-

- a) Air Carrier Certification and Surveillance
- b) Non-Scheduled and Charter Flight Clearances
- c) Air Transport Statistics

v) Legal Affairs Directorate

To ensure compliance of legal requirements and advise on legal aspects, such a new Directorate is required to be created in DGCA. This should be on the same pattern as obtaining in other countries.

vi) Air Safety Directorate

vii) Aeronautical Engineering Directorate

- a) The existing R&D Directorate plays the role of Aeronautical Engineering Directorate (AED) as per ICAO Standards and it should be renamed as AED. The primary role of AED should be the certification of aircraft/engines, new products, approval of modifications and repair schemes, etc. AED should also

have a Division for certification of CNS/ATM systems being developed/adopted for assisting in air navigation. This Directorate should continue to provide support to Air Safety Directorate and Airworthiness Directorate through its specialized laboratories.

- b) The non-regulatory activities such as design and development of gliders, winches and light trainer aircraft should be discontinued. The financial savings from this can be utilized for strengthening other critical disciplines.

(5) Manpower requirement of DGCA

The reorganization/strengthening of Flight Inspection, Aerodromes Standards, Air Transport Directorates and creation of Legal Affairs Directorate in the DGCA would require creation and recruitment of qualified technical manpower. DGCA may be asked to prepare a detailed proposal for creation of additional posts, evolve an appropriate procedure for recruitment and identify places for specialized training.

Since DGCA is to be vested with the additional responsibility of licensing Air Traffic Controllers, certification and surveillance of CNS/ATM equipment, facilities and systems and flight calibration of navigational equipment, the manpower would need high quality training. Salary level of such high quality manpower is very high and hence it would be appropriate to adopt a system similar to that of Flight Inspection Directorate. Senior pilots from industry are taken on deputation by FID and check fees is charged from the industry to recover the cost to the government. A similar arrangement should be worked out for induction/ recruitment of qualified personnel for certification/surveillance of CNS/ ATM and flight calibration of navigational equipment.

(6) Other Issues

The Tariff Examination Division of DGCA, which is primarily responsible for approving international passenger fares and frequent flyer programs may be disbanded in view of the Committee's recommendation in Part I of the Report to liberalise air transport services. The issues that have anti-competitive implications, if any, could be addressed eventually by the proposed Competition Commission of India and, until then, by the proposed Aviation Economic Regulatory Authority (AERA).

DGCA, which at present is responsible for both investigation and prevention of accidents and hence, faces a potential conflict of interest. To make investigation more transparent and useful (for safety enhancement), DGCA should confine its role to prevention of accidents/incidents in line with the practice followed by advanced countries such as USA, UK, Canada, Australia, France, Germany etc. Investigation of accidents and major incidents should be entrusted to a separate organisation constituted under the Ministry of Civil Aviation.

**4.2 Amendments required to the Aircraft Act 1934, Aircraft Rules 1937 and other Regulations**

#### 4.2.1 Need for Amendments

During the last decade aviation scenario in India has changed tremendously. With the open sky policy of the government, private airlines have started operations making it essential to have a revised set of regulations to ensure safe operation of aircraft and passengers. Though the regulations have been revised/ reviewed in piecemeal, a comprehensive review needs to be undertaken for effective regulations of all aspect of aviation.

#### 4.2.2 The Aircraft Act 1934

- (1) The responsibility of licensing Air Traffic Controllers should be vested with the DGCA.
- (2) Contravention of the provisions of the Act attracts only a paltry fine of Rs. 1000/2000 or imprisonment of six months to one year. The financial penalties that were laid down long ago have become inadequate in the present context. Sections 10, 11 and 11B of the Act on this aspect need to be reviewed and suitably amended.

#### 4.2.3 The Aircraft Rules 1937

- (1) Aircraft Rules 1937 are required to be reviewed and new rules pertaining to the following need to be introduced:
  - a) Licensing of Air Traffic Controllers
  - b) Surveillance of aerodromes including the air navigation facilities and systems and flight calibration
  - c) Certification and surveillance of Satellite Based Augmentation System (SBAS)
- (2) Some of the areas where the existing Rules require amendment are given below:
  - a) Rule 13A prohibits passengers from carrying camera in aircraft except with prior permission of DGCA. This rule needs to be deleted.
  - b) Rules 18(1A), 140A, 140B, 140C and 153 stipulate certain obligations on "Corporation" (implying the erstwhile Indian Airlines and Air India). The rules need to be reviewed in the light of Air Corporations Act having been repealed and operations of private airlines.
  - c) Rule 25 requires the owner (or the operator) and the Pilot-in-Command of an aircraft to exhibit notices in the aircraft to indicate where smoking is permitted. The rule may be deleted since smoking in flight is not permitted now.
  - d) Rule 38A(3) requires flight navigator on aircraft not equipped with navigational equipment capable of providing instant and continuous ground position when on a flight of more than 600 NMs (such as in Kolkata-Port Blair and Chennai-Port Blair Sectors) and engaged in public transportation. Modern aircraft, however, provide the requisite information to the pilots independent of the ground based navigational equipment and therefore do not necessitate carriage of a flight navigator. The rule therefore needs to be reviewed.

- e) Rule 42A on Flight Duty Time Limitation (FDTL) in its present form covers only the maximum flying hours to be logged by a pilot in 30 consecutive days. The rule does not cover the other aspects of FDTL such as rest periods, etc. The rule may be reviewed to include all elements of FDTL. The rule may also be so amended to include FDTL requirements for all categories of operational personnel like flight crew, cabin crew, Air Traffic Controllers etc. and details to be provided by DGCA through CAR.
- f) Rule 133A gives powers to the DGCA to issue directions under which the Civil Aviation Requirements (CAR) are issued. The rule may be reviewed to provide for a mandatory inclusion of a public notice inviting comments except in case of imminent threat to safety or security.
- g) In the wake of repeal of the Air Corporations Act, only some of the provisions of Part XIII of Aircraft Rules, dealing with Air Transport Service, were amended. The entire Part XIII, however, needs to be reviewed and redrafted in line with the present scenario.
- h) Schedule V to the Aircraft Rules pertaining to Aerodromes was formulated when the airports belonged to DGCA prior to the formation of NAA. The landing and parking charges in these rules date back 20 years. These rules may be reviewed in view of the changed ownership. The airport operators may fix these charges subject to the approval of the proposed Aviation Economic Regulatory Authority (AERA) in line with the Committee's recommendations in Part I of the report.
- i) Schedule VI of the Aircraft Rules pertains to penalties to be imposed for violation of Aircraft Rules. The penalties are no more than Rs. 250/500 or imprisonment of one/two months. The penalties are meagre amounts in today's times and need to be reviewed.
- j) Schedule XI to the Aircraft Rules, which lays down the procedures for grant of permission to operate scheduled air transport services needs to be amended along with Part XIII of the Aircraft Rules.
- k) The provisions of the rules 71, 74, 75 and 77C need to be amended, to cut down the delay in making an investigation report public. l) Rules 134 and 135 relating to air transport services and tariff filing were applicable when prior approval of fares/tariff was required. At present, tariff for domestic operations as well as international cargo operations have been deregulated. These rules therefore need to be amended to be in conformity with the deregulated scenario.

#### **4.2.4 Review and Simplification of Other Regulations**

- (1) Many of the Civil Aviation Requirements (CARs) pertaining to air transport services need to be reviewed in view of the radically changed scenario in the country. Some important changes required are given below:



- a) Allowing publication of the Schedules by non-scheduled airlines needs to be considered.
- b) Operating permit for cargo operations is issued separately for domestic and international operations. This practice imposes restrictions on operator's activities and hampers economy of operations. To provide flexibility in operations a single permit needs to be issued which would cover both domestic and international operations.
- c) The application for getting initial 'No Objection Certificate' (NOC) to obtain operating permit for air transport operations requires the applicants to indicate the type and registration of the aircraft they wish to import. This exercise is usually futile in case the grant of NOC gets delayed resulting in the applicant having to search for a new aircraft when he is finally in possession of the NOC. Therefore, it should suffice if just the type of aircraft is indicated in the application.
- d) For grant of permit for scheduled operations, an applicant is required to employ at least three sets of pilots for each aircraft. This requirement is based on the assumption that the expected extent of flying will be very high as in the case of large jet aircraft. Since turbo-prop and small jet aircraft usually fly much less than large jet aircraft, the minimum requirement of pilots should be reduced to two sets per aircraft of the type having maximum certified seating capacity of up to eighty seats only.
- e) Clearance of charter flights to India was made very stringent subsequent to the Purulia arms dropping case, particularly in respect of aircraft having of doors that can be opened in mid-air. This requirement needs to be reviewed.
- f) Government has allowed the operations of private airlines on international sectors. The requirements in this respect should be rationalized at par with international practices.
- g) Currently all avionics related maintenance is required to be certified by Avionics engineers. This results in delays at smaller stations where only AMEs holding A and C licences are posted by airlines. This requirement may be reviewed so as to grant additional privileges for avionics to the A and C engineers after giving them requisite training.
- h) Scheduled operators are required to obtain clearance from DGCA headquarters if they have to reroute/change an aircraft due to operational or commercial reasons. This entails lot of hassles for operator, especially if such a clearance is required on a holiday or after office hours. The requirement of prior clearance from DGCA should be dispensed with. A clearance from ATC should suffice in such cases.
- i) The operating permit currently issued to operators is valid for one year. This is cumbersome, as it requires frequent movement of papers between the operators

and DGCA. The DGCA should, therefore, extend the validity of operating permits of scheduled operators (to, say, five years) and non-scheduled operators (to, say, three years). It may be noted that DGCA has recently extended the validity of licenses of pilots, which significantly reduces the workload without undermining the regulatory objectives of licenses.

- (2) During the past few years, officers of DGCA and personnel from the aviation industry have been exposed to international regulations and practices through the COSCAP-SA Programme and EU-India Civil Aviation Co-operation Project. From the knowledge gained from the international exposure, DGCA should review its regulations to bring them in line with the international practices followed by agencies like JAA of Europe and FAA of USA especially those pertaining to Approval of Design/Production Organisation (as in JAR 21), Approval of Maintenance Organisation (as in JAR 145).

### 5.1 Airport Development and AAI restructuring

There can be no growth of civil aviation without the development of an efficient and modern airport infrastructure. All the other major emerging economies have already upgraded their airport infrastructure to be at par with or even better than what exists in the developed countries. It is only in India that there has been no significant investment in this area in the last one decade. Airport infrastructure is, therefore, the single most important area in the civil aviation sector that calls for urgent attention of the government.

In Part I of the Report the Committee had strongly advocated a policy of privatisation of airports. The Committee has noted that since submission of Part I of the Report, privatisation has become the subject of a major national debate and a political consensus on this sensitive issue is not yet in sight. In view of the urgent need for modernisation of the airport infrastructure, the Committee would like to reiterate its earlier recommendations with certain additional steps that could be taken for modernisation through a restructuring of AAI. The Committee, however, hopes that the ongoing process of restructuring Delhi and Mumbai international airports would be carried to its logical conclusion.

Management of all airports in the country had been brought under a single authority earlier with a view to ensuring uniform minimum standards. While this did help small airports in remote areas also to maintain standards at a minimum acceptable level, the centralised decision-making process killed local initiative and accountability. Such a monolithic management structure is not conducive to rapid development of a mature airport network of international standards and does not exist in any developed country of comparable size. In mature markets, airports compete among themselves on the strength of performance standards and each airport tries to maximise revenue from all possible sources. The AAI is now able to boast of vast reserves of funds only because it has failed to reinvest the airport revenue for expansion and modernisation even as it kept raising airport charges exorbitantly at regular intervals. The absence of even one international airport with parallel runways is a sad comment on the monolithic management of airports. Encroachment of vast areas of airport land right under the nose of local airport management also points to the absence of accountability. It is strange that nearly one lakh squatters have come to occupy prime land at Mumbai airport in an organised manner and yet not even one person has been held accountable or punished for allowing this to happen.

Government should, therefore, unbundle the Airports Authority of India and corporatise airport management. Each of the larger airports should be managed by an independent corporate entity while the smaller airports may be grouped together on regional basis and corporatised. State Governments and Financial Institutions should be encouraged to invest in the equity of these separate airport companies. A part of the profits earned by the larger airports should go into a common airport management fund under the AAI and the revenue

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shortfall of the smaller airports i.e. regional airport companies may be met out of this common kitty. The airport companies that need such financial assistance would, however, have to present details of their plans to raise revenue and the justification for seeking assistance from the common kitty. The Committee has noted that AAI has made very little effort so far to increase non-aeronautical revenue from the vast tracts of prime land owned by it at airports. Indeed the large scale illegal alienation of airport land also points to the lack of any plan to make use of it.

The consultancy, architectural and construction wings of AAI should be hived off as a separate company which may take an Indian company with good international track record as joint venture partner. Financial institutions also could be encouraged to invest in its equity. This entity should be encouraged to take up construction projects in India and abroad through competitive bidding. With the expertise and infrastructure available with the AAI there is every reason to believe that this construction company will emerge a winner if there are no artificial props.

The cargo operations of AAI also should be hived off into a separate company. There is need to develop a major cargo company of international standard which can take up operations on a national scale. At present, the cargo operations are seen as a minor side business of AAI. A dedicated company will have the motivation to raise its performance level to international standards.

In Part I of the Report, the Committee had recommended separation of ATC services from AAI and vesting them with a government-owned ATC corporation. If AAI is restructured on the lines suggested in the preceding paragraphs, there will be no need to create a separate ATC corporation since AAI will then be primarily left with only the responsibility for CNS-ATM. This will also obviate the need to amend the Airports Authority of India Act which has vested this responsibility in the AAI specifically.

Some instances have been brought to the notice of the Committee where land use pattern around the airports are being changed. For example, residential colonies have been permitted near Jaipur Airport. These activities may hamper future expansion and development of airport besides affecting the operations of aircraft. The Committee feel that State Governments should give necessary instructions and directions to local authorities in this regard.

## **5.2 Enhancement of Air Space Capacity**

The Committee in Part I of the Report addressed the issue relating to optimisation of air space and recommended the model followed by United States and many other countries, wherein the entire air space is permanently made available for civil aviation and segments of air space are reserved for defence on request. There are many specific issues relating to availability of air space and air traffic capacity in domestic airports, which need to be addressed on priority. Given the increase in over-flights and the increasing number of aircraft being handled by airports, it is necessary to initiate measures urgently to address these issues. Even now, there are frequent complaints of delay in take-off and landing slots due to constraints of runways' capacity and air-traffic-control-associated problems.

To speed up air traffic, additional multiple parallel Air Traffic Services (ATS) routes under EMARSSH (Europe-Middle East-Asia Route Structure South of Himalayas) project were introduced in the year 2002 and the Reduced Vertical Separation Minima (RVSM) in 2003. There has been significant increase in air traffic and the air space utilisation following the introduction of EMARSSH routes and RVSM. This has necessitated an increase in trained manpower.

In view of the further increase in air traffic anticipated in the coming years the following additional measures are required to be taken to further increase the airspace capacity and flight safety.

- (1) Reduced longitudinal separation minima between aircraft both in the en route phase and the arriving/departing phase of the flight should be provided by application of radar separation instead of procedural separation in Indian terrestrial airspace. For international routes, this may be adopted wherever the adjacent country/ATS unit is able to provide similar separation.
- (2) Bridge the gaps between some of the adjacent radar coverage to cover the entire terrestrial air space. Four additional radars are needed as per the details given in section 5.4.3.
- (3) Radar data networking has to be ensured to provide continuous radar surveillance in contiguous sectors.
- (4) High Frequency (HF) back-up must be made available to Air Traffic Control Officers (ATCOs) with monitoring and intervention capability.
- (5) Upgrade air space from Class D & E to Class A in RVSM air space, i.e., FL (Flight Level) 290 to 410.
- (6) Introduce user preferred routes [direct routing] to reduce flying time and thereby reduce airspace occupancy.
- (7) Review the existing number and jurisdictions of various Area Control Centers (ACCs) and sectors therein. (The sectors need to be reorganised and additional sectors are to be provided in high traffic density area to facilitate efficient handling of traffic and to ensure flight safety. Consequently, adequate manpower has to be provided to these area control centers/sectors.)
- (8) Create Upper Area Control between FL 260 and FL 460 [in view of additional FLs introduced through RVSM].
- (9) Implement air traffic flow management system.
- (10) Integrate all Radar Data Processing System (RDPS) and Flight Data Processing System (FDPS) in various ACCs interfaced with centralised air traffic flow management system.
- (11) Introduce advanced computer-aided Controller tools to detect traffic conflicts and

generate alerts in advance and also to provide possible traffic resolution to ensure safety and smooth flow of traffic.

### **5.2.1 Procedural changes**

- (1) All domestic aircraft, which do not require full length of runway, should take off from the nearest intersection of runway based on the Take Off Run Available (TORA) for the aircraft.
- (2) All departing traffic should, as far as practicable, complete their pre-departure check prior to entering the runway so that they could take off with minimum runway occupancy time.
- (3) Arriving traffic should maintain the minimum final approach speed from 8 miles on final to touchdown.
- (4) Separate controller in Approach to handle arrivals and departures in addition to Approach Controller who would monitor both arrivals and departures within the sector.
- (5) Approach coordinator to manage the traffic between ACC and Approach, where required.
- (6) Additional position in control tower to issue ATC clearance to departing aircraft through electronic means/data link at Delhi and Mumbai to reduce Radio Telephone (R/T) congestion and for expeditious departure. Installation of data link facilities may be expedited.
- (7) Voice coordination between Approach and Tower, and Approach and ACC should be supplemented with Data Communication through radar display, wherever required.
- (8) Currently, there is no provision specifying the separation between the arriving aircraft making a straight-in approach and departing aircraft taking off in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach of the arriving aircraft in terms of a designated fix on the approach track. As a consequence, the flow of traffic is hampered. At airports in countries where comparable facilities are available, aircraft arrive and depart at much shorter intervals. There is, therefore, need for a review of current practices. Also a fix needs to be established in consultation with operators to enhance the aircraft movements to and from the airport. The fix may be established at a distance of around 5 miles from the threshold depending on the availability of rapid exit taxi track at suitable locations.

### **5.2.2 Civil—Military Coordination**

- (1) The concept of flexible use of airspace needs to be implemented.
- (2) All "Reserved Airspace" should be reverted back to civil ATC whenever there is no substantial requirement for military activity.
- (3) Airspace above a certain height, which is not required for military purposes should be made available to civil ATC on a permanent basis.

- (4) Domestic route structures need restructuring to provide direct flying through reserved airspace, which will reduce flying time and help to save fuel.
- (5) The Hindon airspace above 5000 feet should be handed over to Delhi ATC to facilitate efficient handling of traffic and to reduce track distance of both arrivals and departures of aircraft.
- (6) Restrictions for civil flights due to multiple military establishments near Hyderabad airport should be relaxed so as to facilitate direct flying of civil aircraft and thereby reduce flying time and fuel consumption.
- (7) Air Force exercise at busy airports like Mumbai and Delhi should be reduced or avoided to minimise disruption of large number of civil flights.

### **5.2.3 Helicopter Operations**

Helicopter operation in India is basically Visual Flight Rules (VFR) oriented and subject to visibility conditions as applicable to VFR and special VFR flights. Helicopters are also operated from airports and constitute traffic like any other fixed-wing aircraft. Separation minima applicable for fixed wing aircraft is therefore mechanically applied to helicopters also. In recent years, helicopter movements have increased considerably especially at Mumbai and Delhi airports. This not only affects the scheduled flights, but also contributes to communication congestion during peak hour traffic.

In order to streamline helicopter operations at Mumbai and Delhi airports, the following suggestions may be considered:

- (1) Heliports should be developed at sites, which do not interfere with the aerodrome traffic.
- (2) Separate routes/ air corridors for helicopters should be developed in such a manner that helicopters in these routes do not pose any safety hazard to fixed wing aircraft movements.
- (3) Helicopters on the designated routings may operate without requiring ATC clearance in VFR conditions at the heights applicable to these routes.
- (4) Review of applicable rules for VFR / Spl VFR operation and height requirements needs to be conducted by the DGCA. The review may also be extended in respect of slow moving aircraft.

### **5.3 Airport Capacity Enhancement**

As a long-term measure, action should be taken to construct parallel runways at least at all the international airports where feasible, and at green field airports. Furthermore, to minimise the runway occupancy time, rapid exit taxiways should be provided at suitable locations so that different types of aircraft can vacate the runway at appropriate landing speed.

The airport capacity at Mumbai and Delhi has already reached saturation level. In view of the anticipated air traffic growth in India in the coming years and the obligation to meet international standards, the following measures may be undertaken on priority basis:

### **5.3.1 Delhi Airport**

Provide for:

- (1) Rapid exit taxiways before the existing taxiway "Delta" (R/W 28).
- (2) Taxiway in between two runways [09/27 and 10/28] connecting Taxiway "D" and "E" to avoid taxiing of aircraft on runway 27. (This will facilitate domestic operations from Runway 27 when R/W 28 is in use.)
- (3) Rapid exit taxiway for international traffic landing on Runway 10 to proceed to international terminal.

### **5.3.2 Mumbai Airport**

Provide for:

- (1) Connecting taxiway for runway 14 beginning to connect international apron to minimise runway occupancy for international departures.
- (2) Rapid exit taxiway for Runway 27 after feasibility study.
- (3) Connecting taxiway to the beginning of Runway 27.
- (4) Connecting taxiway to Runway 32 from intersection of taxiway 'G' with R/W 27.

In addition to the above, at both Mumbai and Delhi airports, Advanced Surface Movement Guidance and Control System should be integrated with Airport Surface Detection Equipment (ASDE), for better surveillance of ground movement of aircraft and vehicles. Also, slot allocation system should be made more efficient. Towards this end, the system should take into account ground infrastructure facilities, ATS facility, fog management, airspace closure, etc.

## **5.4 Enhancing Communication, Navigation & Surveillance Capability**

### **5.4.1 Communication**

#### **5.4.1.1 Air-Ground Communication**

Two-way communications between controller and pilot should be made available under the following categories.

**VHF (Very High Frequency) Communication:** The entire terrestrial air space over India and maximum possible oceanic air space within the Indian Flight Information Regions (FIRs) is required to be covered by direct controller-pilot voice communication using VHF. The existing coverage of VHF is less than adequate and, hence, needs to be enhanced by providing



additional VHF stations. In this context, additional RCAG (remote controlled air ground) stations should be provided, with adequate over-lapping between two stations so that more than 99% reliability of the communication is achieved. The list of additional RCAGs to achieve this objective is given below:

<b>Controlling Station</b>	<b>Controlled Station</b>
1. Trivandrum	Ooty
2. Chennai	Bellary
3. Mumbai	Goa
4. Kolkata	Jharsuguda, Shillong, Katihar
5. Delhi	Jodhpur, Amritsar, Sundernagar (H.P.)
6. Guwahati	Shillong

In addition to the above, the range of existing VHF stations needs to be extended by providing high powered equipment at the following stations:

1. Kolkata – Port Blair
2. Kolkata – Visakhapatnam
3. Kolkata – Bhubaneswar
4. Chennai – Port Blair
5. Chennai – Visakhapatnam

Link between controlled and controlling stations should be through end-to-end Optical Fibre Cable (OFC) connectivity with VSAT (Very Small Aperture Terminal) connectivity as back-up facility. VSAT could be used as the main link wherever OFC connectivity is not feasible.

**VHF Data Link (VDL):** All VHF stations shall have data link capability for establishing data communication with the pilot whenever the standards for data link communication on VHF are finalised.

**Controller Pilot Data Link Communication (CPDLC):** Direct Controller to pilot data link is to be provided at all Flight Information Centres/Area Control Centres to ensure quick and reliable communication. All aircraft flying in Indian airspace above flight level 260 should necessarily be equipped with Future Air Navigation Systems (FANS) workstations in phased manner. DGCA may develop necessary regulations in this regard.

**HF Communication (Voice/Data Link):** HF Air Ground Communication is to be provided to work as backup to CPDLC.

#### **5.4.1.2 Ground to Ground Communication**

At present, the communication between area control centres and Flight Information Centres (FICs) in different locations is provided on leased lines from Bharat Sanchar Nigam Limited (BSNL). Following the extensive introduction of optical fibre cable network by BSNL, the reliability and serviceability of these links has improved considerably. However, the problem in last mile connectivity between the BSNL centre in the city and the airport still persists at many places, although at airports such as Delhi, Mumbai, Kolkata and Chennai, Mahanagar Telephone Nigam Limited (MTNL)/BSNL have already extended optical fibre cable connectivity between the city centre and the airport which has resulted in improved serviceability of these lines beyond 99%. This connectivity needs to be improved at other airports as well. Communication between area control centers and FICs should be provided for controller to controller communication to effect smooth handover of traffic (including radar hand-off for provision of radar separation) with end to end optical fibre cable. Wherever such communication is not feasible, VSAT Technology should be used.

#### **5.4.2 Navigation**

##### **5.4.2.1 Conventional en route Navigation systems**

Terrestrial air space within Indian FIR is adequately covered by combination of Very High Frequency Omni Range (VOR) and Distance Measuring Equipment (DME). Even though VOR and DME equipment are available, the watch hours for these equipment need to be enhanced to meet operational requirements. For example, VOR and DME facilities at Calicut, which has been on operation from dawn to dusk, need to be operated round the clock. All facilities meant to meet operational requirement on a 24-Hour basis have to be manned by enhancing maintenance manpower.

##### **5.4.2.2 Conventional Landing System**

Instrument Landing System (ILS) along with instrument Runway Visual Range (RVR) facility should be provided at all airports that have jet aircraft operations to ensure greater reliable landing facility. At Delhi airport, Cat-III (A) ILS needs to be upgraded to Cat-III (B). Cat-II ILS needs to be provided at Kolkata, Ahmedabad, Lucknow, Jaipur and Amritsar, as an immediate measure; and, at other airports, requirements should be periodically reviewed keeping in view weather and operational conditions.

**Future en route Navigation and Landing System:** Satellite-based Navigation GAGAN should be provided for air route navigation surveillance within Indian airspace, and Ground Based Augmentation System (GBAS) may be provided at all airports requiring CAT-II (and Cat-III, when certified) landing facilities.

#### **5.4.3 Surveillance**

At present, Monopulse Secondary Surveillance Radar (MSSR) equipment are provided at 12 locations, viz., Delhi, Mumbai, Kolkata, Chennai, Varanasi, Hyderabad, Behrampur, Nagpur, Thiruvananthapuram, Mangalore, Ahmedabad and Guwahati. These equipment cover most of

the terrestrial air routes by radar. However, there are gaps between the coverage of these radars and hence the required separation under radar coverage cannot be achieved. Terrestrial air routes in their entirety and maximum possible oceanic air routes are required to be covered by secondary surveillance radars. The coverage has to be worked out in such a manner that all aircraft flying above flight level of at least 260 and above are covered by radar. The exact locations of additional MSSRs are to be worked out accordingly. The entire oceanic air space where air traffic services are provided by AAI should necessarily be covered by Automatic Dependent Surveillance (ADS) as per the standards and recommended practices promulgated by ICAO. Here, it is noteworthy that there are gaps on the following routes: Delhi-Ahemdabad, Delhi-Nagpur, Chennai-Kolkata and Varanasi-Guwahati. To provide radar coverage on these ATS routes at FL 260, four additional radars need to be installed at suitable locations. This will also enable provision of radar separation between aircraft when other associated facilities are provided. If surveillance coverage and radar separation are required at lower levels, a study would be necessary to examine if resiting existing radars can achieve the objective. Otherwise, additional radars will have to be deployed. The Committee is distressed to note that even though decision to plug these gaps by acquisition of required number of radars was taken some months ago, the same is yet to be implemented.

Surface Movement Guidance and Control Systems integrated with ASDE to match the category of operation at the concerned airport need to be provided in phases at Delhi, Mumbai, Chennai and Kolkata airports, so that the entire airport operational area including shadow areas behind hangars etc. are covered properly. The Surveillance facilities have to be provided and manned during the entire period of aircraft operations.

#### **5.4.4 Power supply for Main equipment and Air-conditioning**

Keeping in view the deterioration in performance of electronic equipment due to improper power supply and environment, it has to be ensured that all such facilities are provided with power supply of correct voltage and frequency with adequate back-up of Uninterrupted Power Supply (UPS). In case of unreliable power supply, adequate arrangement should be made to provide dedicated power supply to these systems.

#### **5.4.5 Environmental Protection for CNS Equipment**

At each site, care should be taken to provide controlled environment, i.e., regulated temperature and humidity and dust-free operations. For this purpose, appropriate air-conditioning equipment should be provided and appropriate building designs should be adopted. Also, adequate protection against lightning and other natural calamities should be provided.

### **5.5 Flight Check**

While dealing with the subject of DGCA restructuring in paragraph 4.1.3 the Committee has recommended that the flight calibration work should be carried out by DGCA engaging independent external agencies if necessary. This is to ensure that the check or audit is carried out by the regulatory agency rather than the service provider. This work is outsourced to



specialised agencies in many other countries. In India this work is being carried out at present by AAI through its own flight inspection unit which has only two Dornier-228 aircraft for this purpose. The Committee is given to understand that this activity is currently suffering from paucity of flight crew. AAI does not have even one aircraft capable of flying at high altitude which is required for the flight calibration of facilities like Leh VOR. Nor does it have any aircraft equipped with air-borne equipment and ground laboratory to cater to flight calibration of all navigation aids and landing aids up to Cat-III (B) operations.

## **5.6 Development of Heliports and Helipads**

Until recently, helicopter operations were confined to deployment in connection with offshore operations and operations in a few remote locations in the North Eastern part of the country. In recent years, however, demand for helicopter operations is rising and emanating from more diverse sources such as the corporate sector and tourism, thereby creating a need for accelerating the growth of helipads and heliports. Moreover, the movement of VIPs by helicopters has increased in the recent past. The issue of facilitating helicopter operations at airports has been covered in section (7). However, it is not sufficient if helicopter operations are facilitated at airports only from air traffic point of view; development of heliports and helipads are also important.

### **5.6.1 Heliports**

The corporate sector may be encouraged to set up heliports on their premises, consistently with safety standards and control and operate them with the help of trained staff. DGCA should evolve a set of guidelines prescribing minimum safety standards such as land area required, safety aspects relating to height restrictions in and around heliports, the minimum number of trained personnel required to ensure safe operations etc. These would be mainly technical specifications. Further, the heliports need to be licensed to operate after a technical inspection by DGCA. There could also be a provision to renew "Heliport Licences" periodically – say, every three years. The role of DGCA would be confined to prescription of standards, initial inspection for licensing and periodic inspections for renewals.

### **5.6.2 Helipads**

Frequent use of helicopters is resorted to by the State Governments for the Governor, Chief Minister and other VIPs to visit interior areas of the States to attend to official work or to visit natural calamity-affected areas. Of late, helicopters have been widely used for electoral campaigning also. In all such cases, helicopters are allowed to land on improvised helipads at selected spots by district authorities. State PWDs are asked to strengthen the ground and helicopters are allowed to land after visual identification of landing spots. Unfortunately, safety standards are not adequately followed for this purpose. It would be ideal if State Governments could be encouraged to construct helipads – say, one per district on sites cleared by the DGCA – as per technical specifications. These could be in Police Lines, College / School play grounds etc. In order to encourage State Governments to set up such helipads, the Union Government could initially fund part of the cost for about 100 districts in the country. DGCA's role would be confined to identification of suitable grounds, prescribing technical requirements and giving

permission to operate the helipads. State Government officials posted in the districts such as police, civil defence, fire service and PWD officials could be given basic training in safety aspects so that they could provide the services as and when helicopter operations take place. In the long run, helicopter operations in places other than airports and licensed heliports should be confined to only these helipads, which conform to safety requirements. A manual of instructions should be available in each district.

## **5.7 Cargo Operations**

Growth of exports can be boosted if constraints on air cargo movement are addressed. Emerging opportunities for exports of food-stuffs and perishable goods have not been exploited mainly because of the weakness in the system of cargo-handling at airports. The cost and quality advantage of Indian goods for export purpose is often lost due to problems in transportation. It has been forcefully argued before us that the national carrier, Air India, seems to regard freight movement as a mere adjunct to passenger operations. Freight movement by rail or road is not only time-consuming, but also largely unreliable in meeting delivery schedules. Sufficient attention has not been given to development of cargo hubs. Efforts of the Commerce Ministry in developing a cold chain for perishable commodities have not delivered much. Many importers abroad have also attempted to reduce inventory costs by asking Indian exporters to airfreight the goods to points of sale like Departmental Stores.

In the long-term interest of cargo traffic, all major airports should be asked to improve their systems of cargo handling. Though some initiatives have been taken to expedite clearance of goods of exports from customs points of view, exporters are still unhappy about the lengthy forms that have to be filled and the associated cumbersome procedures. It is essential to set up a Standing Committee at each airport consisting of Airport Director, airline representatives, cargo operators, customs officials and exporters to discuss and solve cargo-related problems. The Department of Commerce should also monitor this activity.

A suggestion has been made by concerned quarters that an exclusive "Air Cargo Hub" would help mitigate the grievances of the exporter community. But, given the size of the country and the geographical distribution of import and export cargo, it is doubtful whether such an exclusive hub would be of great use. The requirement today is for greater focus on cargo traffic by all agencies concerned, streamlining of procedures and reduction of costs, at each export point.

## **5.8 Export of Indigenous Aeronautical Products**

### **5.8.1 Aeronautical Products in India**

India has a long history of manufacturing aeronautical products such as aircraft, helicopters and aircraft parts. For example, the National Aerospace Laboratory (NAL), Bangalore has designed, developed and produced one of the world's best light trainer aircraft, HANSA. The NAL is currently engaged in the development of a 15-seater multi-role aircraft. Similarly, Hindustan Aeronautics Limited (HAL), Bangalore has developed a civil version of their Advanced Light Helicopter (ALH) and is looking at markets abroad. Aerospace Systems

Private Limited, Bangalore has developed a Global Positioning System (GPS), which has been supplied in large numbers for use by defence aircraft. Tata Honeywell is also developing a number of software systems for use in aviation. Development of aeronautical products in India is increasing rapidly. This list is not exhaustive. India may, therefore, soon have a larger variety and a more sophisticated set of indigenously developed avionics products for use in civil aviation.

### **5.8.2 The Problem and the Solution**

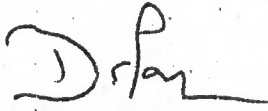
Even though aeronautical products produced here are of world class, India has not been able to sell them always in the world market. The major problem in this regard has been that these products are not Type Certified by the Federal Aviation Administration (FAA) of USA or Joint Airworthiness Authority (JAA) of Europe, the two major agencies involved in certification of large number of aviation products sold worldwide. Though FAA / JAA certification is not mandatory for all markets, buyers abroad often insist on this to have confidence in their safety and reliability. It is mandatory for instance to have FAA certification to gain market access in US.

Manufacturers cannot obtain FAA/JAA certification of the products themselves, as it requires prior agreement. Many aviation product manufacturing countries such as Brazil, Indonesia, the Russian Federation have entered into bilateral airworthiness/ safety agreements with these agencies for joint certification of their products. Absence of agreements with FAA/JAA is a major stumbling block for Indian manufacturers even though the process for an agreement with FAA was initiated sometime back.

Indian manufacturers are looking for a solution. They appear to be willing to demonstrate their capability to design and produce the aeronautical products that meet ICAO and international standards. In fact, HAL is already producing some parts for Boeing 777 and 767 aircraft and also for Airbus A 320 aircraft under direct supervision of Boeing and Airbus in the absence of bilateral agreements between the aeronautical authorities. US authorities have also shown keen interest in entering into an agreement with India. The delay is proving to be expensive for manufacturers, who are unable to export their products even when competitive. Therefore, the required Bilateral Airworthiness/ Safety Agreements with the FAA and JAA should be obtained on a priority basis.

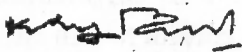
A clear directive from the Government of India and a time-bound programme is required to be pursued to achieve this objective. A joint group under the Ministry of Civil Aviation should be constituted with representation from DGCA, Ministry of Defence, HAL, NAL, Confederation of Indian Industry and other concerned manufacturing agencies to expedite the process. This would be a major step toward opening the doors for our aeronautical industry to compete and market their products abroad, thereby helping accelerate growth of the industry.

Signed at New Delhi and Mumbai on the \_\_\_ day of October, 2004.

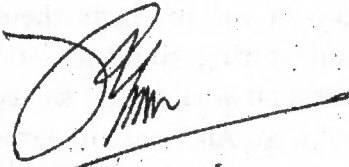


Shri Deepak Parekh  
Member

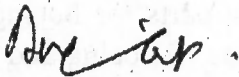
at Mumbai



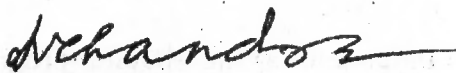
Shri K. Roy Paul  
Member



Dr. Pronab Sen  
Member



Shri V. Subramanian  
Member - Secretary



Shri Naresh Chandra  
Chairman

F.No.Av.13011/02/2003-DT

Government of India

Ministry of Civil Aviation

"B" Block, Rajiv Gandhi Bhawan,  
Safdarjung Airport, Aurobindo Marg,  
New Delhi - 110 003. Dated 21.7.2003

ORDER

It is recognised that aviation sector can be a catalyst for general economic development of the country. Though there have been separate plans for developing the airlines, airports etc., there does not exist a well-defined roadmap for the entire sector. The Government has, therefore, decided to constitute a Committee comprising the following to prepare a roadmap for the civil aviation sector that will provide the basis for a new National Civil Aviation Policy:-

- |       |   |   |                  |
|-------|---|---|------------------|
| (i)   | Shri Naresh Chandra<br>former Cabinet Secretary                     | - | Chairman         |
| (ii)  | Shri Deepak Parekh<br>Chairman, HDFC                                | - | Member           |
| (iii) | Dr. Pronab Sen<br>Adviser, Planning Commission                      | - | Member           |
| (iv)  | Secretary (Civil Aviation)  | - | Member           |
| (v)   | Addl. Secretary and Financial Adviser<br>Ministry of Civil Aviation | - | Member Secretary |

2. The Committee shall prepare a roadmap for the civil aviation sector covering all relevant aspects including the following:-

- (i) Competition in the area of international and domestic airlines and the future role of Air India Ltd. and Indian Airlines Ltd.;
- (ii) Restructuring of airports with a view to developing a world-class airport infrastructure including one or more international hubs;
- (iii) Affordability and connectivity in the domestic aviation sector;
- (iv) Development of regional air connectivity within the country;



- (v) Mechanism for providing air service to interior areas and operation of economically unviable but socially essential routes;
  - (vi) Regulatory mechanism for technical and financial issues;
  - (vii) Upgradation of systems for air traffic control and meteorological information;
  - (viii) Promotion of general aviation;
  - (ix) Aviation security;
  - (x) Aviation safety;
  - (xi) Aviation training.
3. The Committee may consult/invite any expert it may consider useful and interact with institutions, individuals and organisations connected with or interested in civil aviation.
  4. The Committee shall complete its work and submit its final report within three months and may submit interim recommendations whenever felt necessary.
  5. The non-official members of the Committee will be paid TA/DA at the rate applicable to officers of the highest grade in the Central Government for attending the meetings of the Committee. The expenditure on this account will be met from the TA/DA head of the Ministry of Civil Aviation.

Sd/-

(B.K. Dhal)

Under Secretary to the Government of India

Tel. 24640214

To

1. Shri Naresh Chandra, Former Cabinet Secretary, C-4/4053, Vasant Kunj, New Delhi.
2. Shri Deepak Parekh, Chairman, HDFC Ltd., Ramon House, 169 Backbay Reclamation, Mumbai 400020.
3. Dr. Pronab Sen, Adviser, Planning Commission, Yojana Bhawan, New Delhi.
4. Shri K. Roy Paul, Secretary, Ministry of Civil Aviation.
5. Shri V. Subramanian, AS&FA, Ministry of Civil Aviation.

## LIST OF ORGANISATIONS AND INDIVIDUALS CONSULTED BY THE

S.N.	DETAILS OF PARTICIPANTS	MEETING DATE
1.	<p><b>MINISTRY OF EXTERNAL AFFAIRS</b></p> <ul style="list-style-type: none"> <li>• R.M. Abhyenkar, Secretary</li> <li>• Rajiv Sikri, Special Secretary (ER)</li> </ul> <p><b>INDIAN METEOROLOGICAL DEPARTMENT</b></p> <ul style="list-style-type: none"> <li>• S. Kumar Das</li> <li>• P. Rajesh Rao, DDGM (O)</li> <li>• Dr. S.K. Srivastav, ADGM (S&amp;C)</li> </ul> <p><b>PAWAN HANS HELICOPTERS LTD.</b></p> <ul style="list-style-type: none"> <li>• Nagar V. Sridhar, CMD</li> <li>• Sanjiv Bahl, GM (F&amp;A)</li> <li>• Mandip Singh, GM</li> <li>• Sanjiv Agarwal, Company Secretary</li> <li>• R.C. Shrivastava, DGM (OPS)</li> </ul>	21.11.2003
2.	<p><b>MINISTRY OF HOME AFFAIRS</b></p> <ul style="list-style-type: none"> <li>• Harminder Raj Singh, Joint Secretary (PM)</li> <li>• L.C. Goyal, Joint Secretary (IS)</li> <li>• P.K. Bhardwaj, BOI, IB</li> <li>• R. Muttoo, IB</li> </ul> <p><b>CENTRAL INDUSTRIAL SECURITY FORCE</b></p> <ul style="list-style-type: none"> <li>• Taj Hassan, DIG, NZ</li> <li>• Shafi Alam, IG/NZ</li> </ul> <p><b>BUREAU OF CIVIL AVIATION SECURITY</b></p> <ul style="list-style-type: none"> <li>• T.K. Mitra, Commissioner</li> <li>• R.K. Singh, Addl. Commissioner</li> <li>• J.N. Roy, Former Commissioner</li> </ul> <p><b>AIRPORTS AUTHORITY OF INDIA</b></p> <ul style="list-style-type: none"> <li>• S.K. Narula, Chairman</li> </ul> <p><b>OTHERS</b></p> <ul style="list-style-type: none"> <li>• R.C. Jain, Former Secretary to GOI</li> </ul>	17.12.2003

S.N.	DETAILS OF PARTICIPANTS	MEETING DATE
3.	<ul style="list-style-type: none"> <li>• M.A. Elariss, Gulf Air</li> <li>• V.K. Mathur, CMD/INAPEX</li> <li>• Tusharjan, Express Industry Council of India</li> <li>• Air Mshl. S.S. Ramdas, Blue Dart Express</li> <li>• Cyprus Guzder, CII, Civil Aviation Committee Chairman</li> <li>• Indrani Kar, Senior Director Exports, CII</li> <li>• Roshan Lal, Ex. Director (Cargo), AAI</li> <li>• A.K. Prasad, Director (Customs)</li> <li>• R.C. Jain, Former Secretary to GOI</li> </ul>	13.1.2004
4.	<ul style="list-style-type: none"> <li>• A.K. Prasad, Director (Custom); Revenue</li> </ul> <p><b>AIRPORTS AUTHORITY OF INDIA</b></p> <ul style="list-style-type: none"> <li>• Roshan Lal, Ex. Director (Cargo), AAI</li> </ul> <p><b>DELHI EXPORT ASSOCIATION</b></p> <ul style="list-style-type: none"> <li>• S.P. Aggarwal, President</li> <li>• P.N. Suri, General Secretary</li> <li>• V.C. Jain Bhabhu, Vice President</li> <li>• B.K. Aggarwal, General Secretary</li> <li>• Subodh Jain</li> </ul>	20.1.2004
5.	<p><b>INDIRA GANDHI RASHTRIYA URAN AKADEMY</b></p> <ul style="list-style-type: none"> <li>• K. Gohain, Director, IGRUA &amp; Jt. DGCA</li> <li>• Gp. Capt. Neeno Chand (Retd), Flying Instructor</li> </ul> <p><b>OTHERS</b></p> <ul style="list-style-type: none"> <li>• Capt. Mohinder Kumar, RSFS,</li> <li>• Capt. N.L. Dangi, AAA, A'bad</li> <li>• Capt. S.S. Kang, N.I.F.C. Patiala</li> <li>• Chetan Kishor Gupta, Garg Aviation Ltd.</li> <li>• Manohar Dev, M.P. Flying Club</li> <li>• Air Comdr. Ashok Kumar (Retd), Orient Flight, Chennai</li> <li>• Capt. S.N. Reddy, Aviation Advisor, A.P. Aviation Academy, Hyd.</li> <li>• Capt. K. Kishore, C.F.I, Karnal</li> <li>• Y.P. Reddy, CMD, Rajiv Gandhi Aviation Academy, Hyderabad</li> <li>• P.B. Reddy, Chief Instructor, I.A.M.E.</li> <li>• Air Comdr. Ashok Kumar, IHET, Chennai, HAE, Bangalore</li> <li>• A.N. Mukherjee, Indian Institute of Aeronautics, N. Delhi.</li> </ul>	28.1.2004

S.N.	DETAILS OF PARTICIPANTS	MEETING DATE
	<ul style="list-style-type: none"> <li>• S. Kumar, Indian Institute of Aeronautical Science, Calcutta</li> <li>• Ajay Kumar, Indian Institute of Aircraft Engineering</li> <li>• Y.P. Reddy, CMD, Rajiv Gandhi Aviation Academy, Hyderabad</li> <li>• D.Krishna Kumar, Nehru College of Aeronautics &amp; Applied Sciences, Coimbatore</li> <li>• C.C. Ashoka, School of Aeronautical, N. Delhi</li> <li>• C.P. Singh, Dy. Director, Bharat Instt. of Aeronautical</li> </ul>	
6.	<ul style="list-style-type: none"> <li>• Pravin Srivastava, JS (F), Ministry of Home Affairs</li> <li>• Rathi Vinay Jha, Secretary, Department of Tourism</li> </ul>	6.2.2004
7.	<p><b>AIRPORTS AUTHORITY OF INDIA</b></p> <ul style="list-style-type: none"> <li>• A.K. Misra, ED (CNS)</li> <li>• S.S. Singh, GM (ATM)</li> <li>• V. Soma Sundaran, Addl. GM (ATM)</li> </ul>	20.2.2004
8.	<p><b>AIRPORTS AUTHORITY OF INDIA</b></p> <ul style="list-style-type: none"> <li>• A.K. Misra, ED</li> <li>• Sri Krishan, ED (ATM)</li> <li>• V. Soma Sundaram, Addl. GM (ATM)</li> <li>• Gurcharan Bhatara, ED (Ops), IAD</li> <li>• V.D.V. Prasad Rao, Member (F)</li> <li>• P.B. Daswani, GM (Plg)</li> <li>• A. Prasad, Addl. GM(ATM)</li> <li>• J.S. Bhatia</li> </ul> <p><b>AIR INDIA LTD.</b></p> <ul style="list-style-type: none"> <li>• V. Thulasidas, CMD</li> <li>• Capt. T. Manilal, GM, Mumbai Airport</li> <li>• S. Talwar, Regional Director India</li> <li>• T.K. Palit, GM (O)</li> <li>• N.K. Beri, Regional Director, Delhi.</li> <li>• K.S. Balasarai,</li> <li>• S. Santhosham, GM IGI Airport, New Delhi</li> <li>• Hasan Gafoor, Director, Security</li> <li>• G.S. Bankoti, DGM (SE)</li> <li>• Deepak Samal, Dir (GST)</li> <li>• Romesh Bahl, Dy. Manager (Comm)</li> <li>• O.P. Rajora, Dy. Manager (Comm)</li> </ul>	4.3.2004

S.N.	DETAILS OF PARTICIPANTS	MEETING DATE
	<p><b>AIR SAHARA</b></p> <ul style="list-style-type: none"> <li>• Praveen Bhardwaj</li> <li>• K. Damodaran, VP</li> </ul> <p><b>AIR DECCAN</b></p> <ul style="list-style-type: none"> <li>• Capt. Gopinath, Air Deccan</li> </ul> <p><b>JET AIRWAYS</b></p> <ul style="list-style-type: none"> <li>• W. Prock Sohavir, CEO</li> <li>• S.K. Datta, ED</li> <li>• I.K. Verma, EVP</li> <li>• C.S. D'souza, General Manager</li> <li>• A.K. Sivanandan, GM (PR)</li> <li>• Nandini Verma, Vice President (CA)</li> </ul> <p><b>INDIAN AIRLINES</b></p> <ul style="list-style-type: none"> <li>• T.S. Chandrasekhar, Dy. MD</li> <li>• Anjana Maheshwari, Director (Systems)</li> <li>• S. Chawla, Director</li> <li>• Sanjiv Dua, Dy General Manager (F)</li> </ul>	
9.	<p><b>AIRPORTS AUTHORITY OF INDIA</b></p> <ul style="list-style-type: none"> <li>• K. Ramalingam, Chairman</li> </ul> <p><b>DIRECTORATE GENERAL OF CIVIL AVIATION</b></p> <ul style="list-style-type: none"> <li>• Satendra Singh, DG</li> </ul>	14.5.2004
10.	<p><b>CENTRAL INDUSTRIAL SECURITY FORCE</b></p> <ul style="list-style-type: none"> <li>• Taj Hassan, DIG, North Zone</li> <li>• B.K. Ravi, DIG, FHQ</li> <li>• Y.M. Sharma, Co.</li> </ul> <p><b>BUREAU OF CIVIL AVIATION SECURITY</b></p> <ul style="list-style-type: none"> <li>• T.K. Mitra, Commissioner</li> <li>• R.D. Gupta, OSD(I)</li> <li>• R.K. Singh, Addl. COSCA</li> </ul>	1.6.2004



**ANNEX 1**

The linkage between civil aviation sector and economic activity and its catalytic impact on general development are now well recognised. In a 1998 study, the Air Transport Action Group (ATAG)<sup>1</sup> had estimated that the total direct economic impact of aviation on gross world output would increase from US\$1.36 trillion (trn) in 1998 to \$1.7 trn by 2010; 28 million (mn) jobs \* including direct, indirect and induced employment are affected by the civil aviation sector. The International Civil Aviation Organization (ICAO) estimated<sup>2</sup> that \$100 spent on air transport produce benefits worth \$325 for the economy; a hundred additional jobs in air transport results in 610 new economy-wide jobs. The ICAO study attributes over 4.5% of global GDP to the air transport component of civil aviation. A DRI-WEFA<sup>3</sup> study of the impact of civil aviation on the U.S. economy in 2002, using a variety of economic multipliers encompassing the direct, indirect and induced effects on related industries for which civil aviation provides an enabling function, estimated a 9% share of civil aviation in GDP, amounting to about \$900 billion (bn) and 11 mn jobs.

The aviation sector in India<sup>4</sup> is rapidly gaining importance, although its many impacts have not been rigorously quantified. It is estimated that foreign exchange transactions of \$22.5 bn are directly facilitated by civil aviation and another \$96 bn indirectly through civil aviation services.<sup>5</sup> 95% of tourist arrivals are by air. Airports facilitate growth of high-value and perishable trade; 40% of exports and imports in India by value are carried by air. The sector might one day also serve to routinely provide connectivity to remote areas otherwise inaccessible by other modes of transport.

The Airports Authority of India (AAI) manages 122 airports, of which 94 are civil airports (including 11 international airports<sup>6</sup>) and 28 are civil enclaves at defence airfields.<sup>7</sup> These airports handled over 4.4 crore (cr.) passengers in 2002-03 (1.5 cr. international and 2.9 cr. domestic). Domestic passenger traffic had increased 8% in 2002 to 1.3 cr., despite adverse operating conditions, viz., low load factors, high fuel and insurance costs, etc. International passenger traffic carried by Air India (AI) and Indian Airlines (IA) also increased 8% to 0.4 cr. in this period. Indian airports handled close to a million tons (MTs) of cargo (0.65 MT of international and 0.33 MT of domestic) in 2003, a 15% increase over the previous year. Traffic and cargo growth over 2002-03 to 2006-07 is forecast to be between 5-7.5% per annum for domestic and international traffic.

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<sup>1</sup>ATAG, "The Economic Benefit of Air Transport", 1998.

<sup>2</sup>ICAO brochure, "Economic Contribution of Civil Aviation: Ripples of Prosperity", 2000.

<sup>3</sup>DRI-WEFA, Inc., "National Economic Impact of Civil Aviation", July 2002.

<sup>4</sup>The aviation sector in India can be broadly classified into three distinct functional segments: (i) operations, including the activities of Indian Airlines (IA) and its wholly owned subsidiary Alliance Air (AA), Air India (AI), Pawan Hans Helicopter and other private operators; (ii) infrastructure, under the purview of the Airports Authority of India (AAI); and (iii) regulation and development, the responsibility of the Directorate General of Civil Aviation (DGCA) and the Bureau of Civil Aviation Security (BCAS).

<sup>5</sup>Unless otherwise referenced, the numbers in this chapter are culled from the 2002-03 Annual Report of the Ministry of Civil Aviation, the Tenth Five Year Plan document and presentations made to the Committee by Ministries like Tourism, organisations like AAI and DGCA, air transport operators and various industry associations like CII and FICCI.

The partial deregulation of selected segments initiated in the nineties and the consequent competition has transformed domestic airline operations. Choice and flight quality of service, especially on trunk routes, has increased dramatically. Flexible tariff structures are making flying increasingly more affordable. Customer interface and the quality of ancillary services are better. Innovative airline operations models are being introduced. Cargo is governed by an open skies policy. Responses of the government to economic exigencies have also paid dividends; its decision to announce open skies for winter schedules has led to increased tourist arrivals, even in a volatile international environment, and there is now a clamour for extending this policy for three more years.

Despite these advances, India has lost out in aviation; it has missed the travel boom of the nineties, ceded its natural geographic and economic advantages as a cargo and courier hub to other countries and air travel still remains confined to a tiny section of the domestic population. The share of India in total world aviation traffic continues to remain minuscule. India accounted for a mere 24 lakh tourist arrivals in 2002, compared to 71.5 cr. worldwide and 13 cr. in Asia Pacific (a 0.38% share). Worldwide, tourism accounts for 10.2% of GDP, while in India, it is just 4.8%. OAG, a respected industry information service estimates that while air seat capacity has increased 485% in China over 1989-2000, in India, this has increased by a mere 40%. Total world scheduled passenger traffic was 161.5 cr. and cargo traffic by scheduled airlines alone was 30 MT. The 25 largest airports in the world<sup>8</sup> handled some 102 cr. passengers and 1.1 cr. commercial air transport movements in 2002. Mumbai and Delhi airports are ranked the 80th and 109th busiest airports, respectively, in the world, in terms of passenger movement.

An efficient aviation sector is essential to support tourism, an industry with immense employment opportunity. Here, it is noteworthy that investment in tourism industry would generate the largest number of jobs as compared to investment in other sectors. Thus, an investment of Rs.10 lakh creates

13 jobs in manufacturing

45 jobs in agriculture, and

89 jobs in tourism.

Furthermore, tertiary benefits of tourism are significant as the trickle-down benefits of the travel & tourism industry on the economy go far beyond what is apparent. The Satellite Accounting figures of World Travel & Tourism Council (WTTC) suggest that the \$11.33 bn travel & tourism industry in India supported \$23.8 bn in related economic activities.

Barring a few airports, available infrastructure is under-utilised. The four gateway airports account for 42% of revenue. There are a large number of airports where full infrastructure is available, but only operate one to two flights a day; about 50% of AAI airports

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<sup>6</sup>These are at Delhi, Mumbai, Kolkata, Chennai, Thiruvananthapuram, Bangalore, Hyderabad, Ahmedabad, Goa, Amritsar and Guwahati.

<sup>7</sup>Of the total 400 airfields / airstrips in the country.

<sup>8</sup>14 in North America, 6 in Europe and 5 in Asia.

are not being utilised by airlines. Although little quantitative data is available on Indian airports' performance parameters, casual empiricism suggests that quality of service is severely lacking. International airports, the gateways forming tourists' first impressions of India, are sub-standard. Passenger amenities, conveyor belt facilities, etc. are, for the most part, an embarrassment. Grossly inadequate cargo-handling procedures at airports result in delays of a couple of days in transit from one terminal to another. Only ten airports made a profit in 2001, despite airport landing charges having been increased threefold over the last 15 years. Airport charges<sup>9</sup> in India are 78% higher than the international average!

Clearly, the aviation sector in India is in crisis. Our airlines are bleeding, with the public sector domestic carrier having made a loss of about Rs. 350 cr. and the private airlines too are reported to have incurred heavy losses in 2002-03. The average age of IA's and AI's fleet is about 17 years, as compared to an age of 6-7 years internationally. Furthermore, AI employs 16,000-18,000 staff and IA has a staff strength of 20,000, much higher in terms of passenger route kilometres compared to international benchmarks. India has been losing (or, in occasional years, barely managing to retain by dint of bilateral rights) market shares in terms of passengers, aircraft and cargo volumes. The combined capacity of IA and AI actually contracted at a 1.8% CAGR over 1997-2002, thereby restraining them from maximising the network utilisation that is critical to airline profitability. Expectedly, India currently uses barely 40% of its international bilaterals. Costs of travel to and from India remain high, which, combined with the inconvenience of procedures here, has effectively shackled growth of air travel.

The public sector ownership of AI and IA, entailing multiple layers of extra-commercial accountability and cumbersome procurement processes, further hobbles these enterprises and stifles both the commercial orientation and the agility required for expanding in a competitive market. Labour policy inflexibility prevents effective cost management. IA's share of the domestic market (in terms of route passenger kilometres (RPK)) has declined from 100% in 1993-94 to 45% currently. Globally, as a rule of thumb, carriers invest in capacity when load factors touch 70% of capacity. In India, loads consistently cross this hurdle throughout the year. During the peak travel months of October to March, international passenger loads far exceed this level, as a large number of travellers who have been off-loaded from flights from India during peak season will testify. On the other hand, the constraints cited above contribute to keeping domestic travel depressed; seats routinely go abegging on most routes, in turn adversely affecting the financial viability of domestic carriers. There is persistent worry over the ageing fleets of the public sector carriers and the management of air traffic control systems.

It is true that the proximate cause of the airlines' distress is tied to the difficult times through which the civil aviation industry, worldwide, is passing.<sup>10</sup> But the malaise is deeper in India. Over the years, the civil aviation sector has been used often to dispense political patronage and the consequent meddling has adversely affected the sector's viability. The difficult environment for civil aviation has exacerbated distortions, inefficiencies and constraints for which government policies are also responsible.

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<sup>9</sup> Comprising of landing charges, route navigation facility charges (RNFC) and terminal navigation landing charges (TNLC).

<sup>10</sup> The global airline industry is expected to post a \$6.5 bn loss in 2003.

<sup>11</sup> CII presentation to the Committee.

Current restrictions on the provision of ancillary services at airports (like fuelling) give advantage to public sector undertakings, hinder competition and serve to keep costs high. Private airlines are not allowed to establish hangars for major maintenance overhauls at airports and consequently have to outsource maintenance activity to high cost locations abroad. Vacillation over the privatisation of our carriers has seriously hindered their growth and modernisation.

Discussion on privatisation of AI and IA is often centred on the need for having government-owned national carriers. In this regard, the Committee has noted that our own history half a century back, where a privately owned Air India had pride of place in the global aviation community, is often forgotten. It might not be appropriate therefore to discuss this issue as a matter of national prestige. Any airline of India public or private enjoying a good reputation as an efficient carrier should be as much a source of national pride. It is also noteworthy that in a dynamic and competitive industry like air transport, it is quite likely that the incumbent national flag carrier will cede the role to other airlines that emerge as stronger operators. The most prominent example is the U.S., where American Airlines and United Airlines have donned this mantle from erstwhile airlines like Pan Am and TWA.

Given our size and strategic needs, a vibrant civil aviation sector is essential to our economy as well as security. Substantial data has been cited to indicate the importance of civil aviation as an important segment of country's infrastructure. A strong airlines system backed with a well-planned network of airports would be valuable in any national emergency. It would not be appropriate, therefore, to view civil aviation in India as a service for the elite and the rich. This approach, which needs to be adopted in our view for future planning, would require a thorough review of the manner in which the burden of taxes and fees levied in the sector as well as the steps that are needed to encourage and support the growth of civil aviation in India.

An onerous fiscal burden, arising from a view that looks upon the aviation sector as elitist and hence, a milch cow rather than an engine of growth, is taking a toll on air carriers. Excise duty on ATF is 16% and sales taxes on ATF for Indian carriers are on average 25%, resulting in a total mark-up of 45% on basic ATF prices. Allowing PSU oil companies to levy high and arbitrary charges, by dint of their monopoly for supplying ATF, only adds to the burden. As a consequence, it is cheaper for domestic travellers to fly to South East Asian tourist destinations rather than ones within the country. (See Table 1.1)

Financing has become a constraint as well. Airlines are a highly capital intensive and risky business. Over the next 7-8 years, AI and IA will require a capital infusion of Rs. 16,000 cr. and Rs. 10,000 cr., respectively, including an equity infusion of Rs. 500 cr. and Rs. 400 cr.<sup>12</sup> Financing requirements of this magnitude require access to investors with appropriate risk appetites, i.e., foreign capital and it is precisely in this area that restrictions on foreign investment, especially equity, remain the most onerous. The equity limit for foreign individuals and companies in international services, for instance, is 26% and in domestic passenger transport, 40%.<sup>13</sup> Complete prohibition of equity participation of foreign airlines in passenger

<sup>12</sup> Estimate of the external consultants to AI and IA.

<sup>13</sup> The Tenth Five Year Plan, 2002-2007, "Presentation to the National Development Council", Planning Commission, New Delhi,



**Table 1.1: Airfare from Delhi to Selected Domestic & International Destinations**

Delhi to	Round Trip Airfare
Goa	Rs.20,470
Cochin	Rs.30,700
Colombo (DGCA Fare- Round Trip Excursion)	Rs.17,355
Bangkok (DGCA Fare- Round Trip Excursion) via Chennai	Rs.25,170
Bangkok (DGCA Fare- Round Trip Excursion)	
Direct Code Share Flight	Rs.17,980

*Note: Includes Passenger Service Fee and Insurance Fee, as applicable.*

*Source: Indian Airlines*

air transport is, frankly, not to put too fine a point on it, irrational. There are other entry barriers relating to licensing requirements, which artificially serve to limit competition.

In many countries with similar problems, deregulation and liberalisation of aviation in the past decade has enabled them to harness the positive effects of competition. Recognising the need for expeditious redress of the above deficiencies, this Committee was constituted by the Government of India (*vide* order F.No.Av.13011/02/2003-DT dated 21.7.2003) to chart a road map for rapidly rationalising and reforming the aviation sector in India. The Terms of Reference (ToR) are detailed in Appendix 1.

During the course of its deliberations, the Committee held extensive consultations with many stakeholder organisations, a list of which is given in Appendix 2. All these organisations have uniformly underscored the imperative to lower aviation costs and make air travel more affordable so as to facilitate economy-wide development in general and growth of travel & tourism industry in particular. The Committee realised during these consultations that, while it is important to draw on international experience of deregulation, with its range of alternatives and diversity of institutional practices, there is a need to evolve structures that suit India's specific needs and realities. The Committee found it useful to view the aviation sector as comprised of two distinct and separate types of services. The first, the core of the sector, is to be operated as a business and run on commercial principles. The second set, in consonance with social and distributive objectives, including connectivity, should be supported through direct and transparent subsidies from the government.

The Committee felt that, given the breadth of issues involved in deregulating the sector and the complexity of implementation of the resulting recommendations, it would be difficult to do justice to the issues in one Report. Hoary as the cliché may sound, the Committee reiterates that the devil will lie in the details. It was therefore decided that the ToR would be addressed in two parts: Part I to concentrate on issues that will impinge on the *structure* of liberalisation, and which will consequently have a bearing on the Civil Aviation Policy (CAP); and Part II will

focus on implementation issues, especially relating to coordination with other government departments, namely, the Ministries of Finance, Defence, Home Affairs, etc.

Although the Report is structured (for simplicity) in individual modules dealing with options for reducing systemic costs, air transport services, airports, air traffic control and the institutional framework, it is important to emphasise that the individual aviation segments have to be viewed as an organic whole for achieving system-wide efficiencies. The Committee is convinced that if India wants the civil aviation and the tourism sectors to become the key engines of growth, every aspect pertaining to the aviation sector needs to be examined and expeditiously actioned upon. The most important of these relate to the state of our airports, airline profitability, the high costs of fuel (including the fiscal effects on these costs), capacity augmentation and the costs of security. In the radically changed, competitive (and increasingly private sector dominated) environment that the Committee foresees as emerging, it is imperative that the existing institutional framework be substantially modified and some new institutions developed, with each of these organisations having clearly defined, commercially-oriented and sharply focussed limited roles. The Committee is of the firm view that we should have an efficient and vibrant civil aviation sector comprising airlines, airports, air traffic control and cargo services that match up to world class standards and are internationally competitive. Towards this end, the Committee's recommendations pertaining to various segments and institutional structures, taken together, provide a comprehensive approach that balances the need for safety, viability and affordability. The integrated approach is founded on four fundamental pillars. First, the Committee seeks to establish a level playing field for all operators and reduce the debilitating burden of an extortionate fiscal regime. Secondly, the Committee seeks to increase private participation and competition wherever possible by reducing entry barriers. Thirdly, the Committee advocates adherence to stringent safety standards and, in the areas not amenable to competition, the use of contestability, with a sound regulatory oversight to prevent abuse of market power. Fourthly, recognising that affordability and accessibility are often conflicting with connectivity and need to be balanced with viable commercial operations, the Committee suggests institutional mechanisms that transparently and explicitly provide support for socially desirable but uneconomical services.

The structure of this Report is as follows. Chapter 2 explores options for reducing the high systemic costs so as to make air transport more affordable and enhance air connectivity. Chapter 3 outlines the rationale for deepening and widening the ongoing process of liberalisation and privatisation of air transport services in India and delineates various policy measures necessary to accelerate these efforts. Chapter 4 examines methods of increasing efficiencies of existing airports in India, including accelerating the process of inducting private participation that is already under way. Chapter 5 outlines the strategy for efficient provision of air traffic control services in India, including associated issues such as financing and regulation. Chapter 6 outlines an integrated institutional framework that will be best suited to provide a seamless interface between the disparate activities and segments of the sector, as well as provide effective oversight in the emerging liberalised environment. Chapter 7 summarises the key recommendations. The Committee's acknowledgements are contained in Chapter 8.

## ANNEX 2

### 7.1 Enhancing Affordability, Connectivity and General Aviation

The Government of India (GoI) aims to provide world class infrastructure facilities and efficient, safe and reliable air services to meet the requirements of domestic and foreign trade and tourism, and to meet connectivity requirements of remote and inaccessible areas on a priority<sup>14</sup> basis. In line with this, the Committee has been requested to address *inter alia* aspects such as (a) affordability and connectivity in the domestic aviation sector; (b) development of regional air connectivity within the country; (c) promotion of general aviation; and (d) aviation training. In fact, these considerations have underpinned the Committee's deliberations on the various operational segments and institutions in the civil aviation sector. The Committee found it useful to view the aviation sector as comprising of two distinct and separate types of services. The first, a core set of services, to be operated as a business and run on commercial principles and the second, aimed at providing connectivity in consonance with social and distributive objectives, to be supported through direct and transparent subsidies from the government. The Committee would like to highlight that recommendations in the earlier chapters, together, provide a comprehensive strategy – consisting of the four distinct elements – aimed at making air transport affordable and enhancing air connectivity across the various regions of the country:

- (a) Immediate measures that are aimed at lowering system costs of the civil aviation sector. These measures *inter alia* include: a liberal fiscal regime; allowing airlines to source ATF from the supplier of their choice; and improving coordination with other Ministries such as Home Affairs and Defence (Chapter 2).
- (b) Encourage private participation and competition in air transport services, with a view to lowering fares and, thereby, enhancing affordability. In this regard, the Committee recommends the abolition of route dispersal guidelines; lowering of entry barriers; liberalisation of investment norms for foreign equity and foreign airlines; further liberalisation of the international air transport segment starting with permission for domestic private airlines to operate international services; early privatisation of IA, AI and PHHL; and concessions to regional air services, helicopter operations and general aviation (Chapter 3). Facilitate private participation in the provision of airport services to the maximum possible extent, so as to encourage aggressive pursuit of efficiency and facilitate investment in additional capacity (Chapter 4).
- (c) As regards ATC services, enhance operational freedom to enable rapid adoption of modern technologies, through unbundling of ATC services from the AAI and vesting them with a government-owned corporation (Chapter 5). Apart from safety

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<sup>14</sup> Tenth Five Year Plan 2002-07, The Planning Commission, Government of India.

oversight by the DGCA, in order to contain the monopoly power of airports and ATC services, place these segments under the purview of an independent Aviation Economic Regulatory Authority (Chapters 4, 5 and 6).

- (d) Establishment of an Essential Air Services Fund (EASF) to provide explicit subsidy support to essential but uneconomical services including commercially unviable airports (Chapters 3, 4 and 5). Scope of essential services sought to be supported should be congruent with the quantum of funds available with the EASF. Trying to do "too much" with "too little" will undermine an otherwise laudable endeavour.

The Committee believes that a concerted implementation of the above measures would go a long way in lowering costs for the commercial and general aviation segments, thereby making air transport more affordable and its use more widespread.

## 7.2 Immediate Concerns and Remedies

**Liberal Fiscal Regime:** The government should substantially lower excise duty and sales tax on ATF and abolish import duty and sales tax on AVGAS. Other aviation-related taxes and fees such as IATT, FATT and PSF may be replaced with a single, lower ad valorem sector-specific cess, say at 5% of airfare, and the proceeds thereof may be ring-fenced into the proposed non-lapsable Essential Air Services Fund. In case of sales tax, the government may consider categorising ATF as "declared goods" under the Central Sales Tax Act so that sales tax on ATF does not exceed 4%. Furthermore, in case of smaller aircraft that are essentially deployed to enhance regional connectivity, government should do away with the existing discrimination based on the type of aircraft and, accordingly, bring parity in taxes on ATF for jets and turboprop aircraft with maximum certified seating capacity of less than 80.

**Lowering of Airport Charges:** The Committee recommends that airport charges should be substantially brought down to levels comparable with neighbouring South East Asian and Gulf countries.

**Freedom to Source ATF:** Private sector airlines should be allowed to source ATF from the supplier of their choice. In this regard, the Committee suggests that the Airports Authority of India (AAI) should offer to buy out the fuel supply hydrants and associated infrastructure of the government-owned oil companies and provide all oil companies equitable access to such facilities. Alternatively, the government-owned oil companies should be required to provide private oil companies access to these facilities based on a "common user/carrier" principle. In either case, given the potential for abuse of monopoly power, fuel supply infrastructure at airports should come under the purview of the proposed Aviation Economic Regulatory Authority (AERA).

**Ensuring a Level Playing Field:** With a view to ensuring a level playing field between Indian Airlines and domestic private airlines, the Committee recommends the removal of restrictions on travel of government and PSU employees on private airlines. In addition, domestic private airlines should be allowed to operate international services and also be permitted to offer third-party ground handling services. As regards greenfield airports, the



Committee endorses the recent government decision to do away with the earlier proposal of not allowing greenfield airports within an aerial distance of 150 kilometres of an existing airport. The Committee, however, suggests that central and state governments may refrain from extending concessions in general and subsidies in particular to greenfield airports in close proximity to the existing airports, which might impinge on the viability of existing airports.

**Ministry of Home Affairs:** At international airports, the operators must ensure availability of more space so as to enable the Ministry of Home Affairs to locate additional counters and deploy more immigration officers. The computer systems at airports should be upgraded within a one year time-frame and the government should ensure that all passports are machine-readable. Furthermore, the paperwork involved in immigration should be reduced in line with international practices. There should be a dedicated cadre of specially trained officers under the direct control of Ministry of Home Affairs for providing immigration services. As aviation and airport security are sovereign responsibilities, they should be taken over and funded by the Ministry of Home Affairs.

**Ministry of Defence:** In order to optimise the use of air space, the Committee recommends that the government may consider the model followed in the U.S. and many other countries, wherein air space is permanently made available for civil aviation and segments of air space are re-vested and made available to defence on request. Furthermore, the defence services should be required to pay user charges as mutually agreed upon for facilities such as runways. To facilitate effective co-ordination of air space and cost-sharing, civil and defence ATCs may be co-located where feasible.

### 7.3 Air Transport Services

In the domestic air transport segment, route dispersal guidelines should be abolished and airlines should be allowed to service the routes of their choice based upon commercial considerations. Simultaneously, the government should provide explicit subsidy support – preferably from the general exchequer and supplemented by a sector-specific cess of 5% on airfare and proceeds from the privatisation of airports – for providing essential, but uneconomical services, and award it through a system of minimum subsidy bidding. Towards this end, a non-lapsable Essential Air Services Fund (EASF) should be established outside the Consolidated Fund of India and its management should be vested with an independent board. The government should fully harness the scope for recovering the cost of EAS operations, as far as possible, through direct user charges. Furthermore, the state governments may contribute to the lowering of the net cost of EAS through fiscal concessions, as for example, by exempting the EAS operations from high incidence of sales tax on ATF. In addition, the Committee recommends that requirements regarding fleet size and equity capital should be removed, so as to encourage entry (and greater competition) and allow operators and their financiers to make decisions based on commercial considerations. Finally, foreign equity investment norms pertaining to both domestic and international scheduled air transport services should be further liberalised, to allow up to 49% foreign investment. As regards investment by foreign airlines, investment up to 49% may be allowed with the approval of Foreign Investment Promotion Board (FIPB). In all other air services, i.e., non-scheduled services such as helicopter

operations, foreign investment (including investment by foreign airlines) should be allowed up to 100%. The government should pursue liberalisation of the international air transport segment in two phases. In the first phase, private airlines based in India – including the existing domestic private airlines – should be allowed to provide international air transport services to and from India. In the next phase, the government should seek more liberal arrangements under the bilaterals and enhance full-access to wider market segments by joining a regional or a plurilateral group of countries with a similar agenda of liberalisation.

With a view to benefit consumers, enhance tax revenues for the government and give a fillip to the retail travel trade, the Committee strongly recommends further liberalisation of air chartered services. Specifically, the Committee recommends relaxation of restrictions pertaining to frequency and foreign ownership norms for chartered operators. In addition, the Committee suggests that tourist charters should be allowed to take Indian Passport holders on board and also to carry a mix of foreign and Indian passengers on domestic tourist circuits.

As regards Indian Airlines and Air India, given the dire need to rapidly improve efficiency, and to augment investment and limit government interference, government should expedite the process of privatisation and transfer management control to strategic private investors. Towards this end, government may consider private placement of shares of IA and AI (after independent valuation) with domestic financial institutions (FIs) and foreign institutional investors (FIIs). This consortium should be allowed to appoint a management team of their choice and exit at their volition.

The Committee is of the view that Pawan Hans Helicopters Limited, which caters mainly to the needs of the oil sector and charter services, has no justification to be in the public sector. Accordingly, the Committee recommends that the Government should disinvest in PHHL by inducting a strategic partner and, thereafter, go in for an Initial Public Offer.

These recommendations relating to Indian Airlines, Air India and Pawan Hans Helicopters will be in tune with the perspective that the Government should focus on policy-making functions and distance itself from the role of an operator.

The Committee recommends that regional air services should be encouraged by reducing route navigation and landing charges for aircraft and helicopters having a maximum certified capacity of less than 80 seats. The Committee also recommends that helicopter operations and general aviation should be incentivised through reduced navigation and landing charges, rationalisation of sales tax on ATF and AVGAS to bring it at par with Central Sales Tax, waiver of the proposed sector-specific cess for subsidising essential air services, lower hangar charges at airports, etc. Furthermore, in order to encourage helicopter operations, the Committee suggests that the DGCA should develop appropriate procedures for regulating such operations and that separate areas including helipads should be developed at major airports.

As regards regulation, the current safety oversight regime under the aegis of the DGCA should be reformed to incorporate a mandatory consultative process with key stakeholders. In order to monitor and checkmate anti-competitive practices by airlines, competition laws (and the Competition Commission of India) should be relied upon.

## **7.4 Airports**

Given that the key concerns in the airports sector are inadequate management of existing facilities and the need for additional capital for augmenting capacity, the Committee recommends that the government may focus its efforts on early privatisation of all airports. In line with this, the government should expedite the proposed privatisation of Mumbai and Delhi airports and quickly start the process of privatisation of other airports as well. The government should ensure that all potential hurdles to privatisation such as redeployment of existing employees, bearing of security costs, coordination between security, immigration, etc. and effective relocation of existing tenants are dealt with effectively ex ante so that the privatisation process is not delayed. At the same time, the qualification criteria should not be so stringent so as to rule out otherwise competent bidders. The government's aim of providing regional connectivity, and ensuring the development and maintenance of uneconomical airports can be met from the proposed EASF through minimum subsidy bidding. Economic regulation of airports is necessary given the potential abuse of monopoly power by the airport operator, and should be vested with the proposed Aviation Economic Regulatory Authority (AERA). Safety regulation is a key consideration, and monitoring and enforcement of quality standards should be left to the DGCA.

## **7.5 Air Traffic Control**

The Committee recommends separation of ATC services from the AAI and vesting them with a government-owned ATC corporation. Safety regulation of ATC Corporation should be under the purview of the DGCA. In order to contain potential abuse of monopoly power, the ATC Corporation should also be regulated by the proposed AERA. In recognition of the importance of meteorological services in providing effective ATC services, the Committee suggests that the IMD should depute trained meteorological personnel to the proposed ATC Corporation. In order to achieve effective ATC services, meteorologists should function under the control of the ATC Corporation though they may be on deputation. Furthermore, ATC Corporation could procure the meteorological equipment needed for aviation activities after due consultation with IMD. The IMD should continue to be vested with the responsibilities of training and upgradation of skills of meteorological officers and also development of the procedures in accordance with the provisions of ICAO.

## **7.6 Institutional Framework**

Safety should remain the paramount priority of all entities. Given the technically complex procedures relating to safety, there should be a specialised regulator overseeing safety issues, separate from an economic regulator. The DGCA remains well-suited for this function and should be tasked with safety regulation. It should, however, reform its regulatory approach to enhance transparency and initiate consultations with aviation stakeholders. In recognition of the urgent need to strengthen the DGCA, it should be allowed to contract qualified pilots who are either medically grounded or have attained the normal age of retirement from airlines. Such pilots may be contracted up to the age of 65 years (63 years on initial contract and 2 years extension) subject to fitness. In a similar vein, the DGCA should be allowed to avail of the

services of experienced air traffic controllers from the AAI, who are close to their retirement, through deputation or on contract basis. Also, a separate wing should be created under the DGCA for licensing and supervision of air traffic controllers.

Security issues will become more dominant in an increasingly liberalised environment. The Committee recommends that the BCAS should continue to remain the nodal agency for aviation security. Presently, all offences relating to aviation security are being treated as offences under the Indian Penal Code. There are no special provisions to tackle offences relating to aviation security. Hence, there is a significant division of responsibility between the security set-up at the airports and the local police. It would be prudent to have special powers for the BCAS and the security forces providing aviation-related security. For this, the BCAS should be vested with adequate powers by amending the relevant Acts and Rules, as required.

Segments of airports and ATC services, which have natural monopoly or "common user/carrier" characteristics, should be subjected to independent economic regulation by the proposed AERA. The Committee also suggests that the AERA should use a light-handed approach such as multi-year price-cap regulation. In line with this, the Committee recommends establishment of AERA as a single-member entity, supported by appropriate technical staff. As the sector develops, the regulator should gradually withdraw from supervision and cede oversight of anti-competitive practices to the Competition Commission of India.

An Essential Air Services Fund (EASF) should be established to provide explicit subsidy support to essential but uneconomical services including commercially unviable airports. Furthermore, the Committee recommends that the responsibility of managing the EASF be entrusted to an independent board with representatives from the Ministry of Finance and aviation users. With a view to conserving resources and facilitating effective co-ordination, the Committee recommends that, to begin with, the Chairman of AERA may also be appointed Chairman of the EASF Board.

Given that complete liberalisation of international air transport services is quite a way off, the government will have to remain involved in negotiating bilaterals. In this process, the government should ensure that such negotiations do not adversely affect the commercial viability of existing airports, or the vital interests of all the airlines of India.