



ICAO TCB Project IND/07/816
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New Delhi – 110003, India

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To:
Director General of Civil Aviation
New Delhi, India

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ICAO TC Project IND/07/816
Terminal Report on Activities 1.1, 1.2, 1.3, 1.4, and 1.5 of the Project Document

The report contained herein is the Terminal Project Report prepared by Project Coordinator A.K. Bryson (FSE) with assistance from Flight Operations Expert Captain Vinayak Davray and Airworthiness Expert Michel Painchaud. The basics of the report were presented to DGCA and his senior staff at a meeting in New Delhi on November 18, 2010. Comments from the Director General were regarding the remuneration packages provided to Flight Operations and Airworthiness Inspectors, and two reports on the subject were prepared and presented here in Appendix C.

The report contains six elements or sections, which are:

1. Project Terminal Report
2. Attachment 1 to Terminal Report
3. Appendix A – Flight Operations
4. Appendix B – Airworthiness
5. Appendix C – Part 1 Flight Ops
6. Appendix C – Part 2 Airworthiness.

Items 1 and 2 are bound in a single document.

Items 4 and 6 are bound in a single document.

Items 3 and 5 are bound separately in two documents.

A.K. Bryson, PC
Flight Safety Expert



PROJECT TERMINAL REPORT

ICAO Project IND/07/816

PROJECT TERMINAL REPORT

ON

ASSISTANCE TO THE DGCA WITH ENHANCEMENT OF

FLIGHT SAFETY OVERSIGHT CAPABILITY

Prepared by the

International Civil Aviation Organization

December 2010



INTERIM PROJECT TERMINAL REPORT

Terminal Report Format

Enclosed herein is the Project Terminal Report submitted by the Project Coordinator covering Activities 1.1, 1.2, 1.3, 1.4, and 1.5 of the IND/07/816 Project Document. There was insufficient time remaining to consider Activities 2.1 and 2.2 of the document.

The format of the Terminal Report is as follows:

<u>Section</u>	<u>Activities</u>	<u>Report by ICAO Expert</u>
1 to 5	1.1, 1.2, and 1.3	ICAO Flight Safety Expert/PC (FSE)
Appendix A	1.3, 1.4, and 1.5	ICAO Flight Operations Expert (FOE)
Appendix B	1.3, 1.4, and 1.5	ICAO Airworthiness Expert (AWE)
Appendix C	Additional	FSE, FOE, AWE

Therefore, there are four main areas of concern in the report. This format of Appendixes will allow the Director General easier identification of Action Items for the various Directorates, and easier for the Director General to delegate specific Corrective Action the appropriate office.



PROJECT TERMINAL REPORT

CONTENTS

Executive Summary	5
IND/07/816 WORKPLAN.....	7
Activity 1.1	7
Activity 1.2	7
Activity 1.3	8
Activity 1.4	8
Activity 1.5	8
Activity 2.1	9
Activity 2.2	9
1 INTRODUCTION.....	10
2. PROJECT IMMEDIATE OBJECTIVES AND RELATED OUTPUTS	12
Activity 1.1 - Comparison of Indian Civil Aviation Legislation and ICAO Annexes 1, 6, and 8.	12
PART I - Review of ICAO Annexes and Indian Civil Aviation Legislation Introduction ..	12
PURPOSE	12
EXECUTIVE SUMMARY - INTRODUCTION	12
INDIAN CIVIL AVIATION LEGISLATION	13
The Aircraft Manual (India)	13
Civil Aviation Requirements.....	13
ACTIVITY 1.1 REPORT STRUCTURE.....	14
PART II Comparison of Annex 1 and Indian Civil Aviation Legislation	15
EXECUTIVE SUMMARY	15
Indian Civil Aviation Legislation	16
The Aircraft Manual (India).....	16
Civil Aviation Requirements	16
Indian Pilot License.....	16
Validation of Foreign Pilot Licenses	17



PROJECT TERMINAL REPORT

Processing the Indian Pilot/Engineer License.....	17
Designated Examiners.....	18
Aircraft Maintenance Engineer	18
AME License	19
Cabin Crew Licensing.....	19
Flight Dispatcher.....	19
Recommendations.....	20
PART III Comparison of Annex 6 and Indian Civil Aviation Legislation	21
ICAO Annex 6, Part I – International Commercial Air Transport - Aeroplanes	21
Indian Civil Aviation Legislation	21
Comparison between CARs and Operations Manuals	22
Multitude of References	22
ICAO Annex 6, Part II – General Aviation	24
Indian Civil Aviation Legislation.....	24
ICAO Annex 6, Part III – Helicopters	24
Indian Civil Aviation Legislation.....	24
Conclusions.....	25
ICAO Annex 6 Part 1.....	25
Problems with the CARs (examples).....	26
Recommendations	26
PART IV Comparison of Annex 8 and Indian Civil Aviation Legislation.....	27
Purpose.....	27
Executive Summary	27
Indian Civil Aviation Legislation.....	27
THE AIRCRAFT RULE 61 and CAR 66.....	27
CAR 145	28
CAR - M.....	28
DGCA Primary Office of Responsibility for CAR-M.....	29
PART V RECOMMENDATIONS ON THE REVEIW OF Legislation.....	30
PURPOSE.....	30
EXECUTIVE SUMMARY - RECOMMENDATIONS.....	30
RECOMMENDATIONS.....	31



PROJECT TERMINAL REPORT

Activity 1.2	Review the functions of the DGCA Directorates, review the job description of personnel, and recommended revisions, as required.....	36
Introduction	.....	36
Headquarters Organization.....	.....	36
<i>Job Descriptions and Personnel</i>.....	.....	39
Activity 1.3	Assess the ability of existing DGCA flight safety inspectors to perform fully the required inspections and approvals of air operators, MROs and provide recommendations on the numbers and types of additional personnel needed and how urgently they are required.	47
Introduction.....	.....	47
Findings.....	.....	47
Recommendations for Activity 1.3.....	.....	48
ACTIVITY 1.4	Provision of short practical training courses as practical within the limited timeframe of the project to the fresh direct recruits in the slight safety oversight workforce of DGCA.	49
ACTIVITY 1.5	Provision of on the job training to DGCA inspectors through provision of advisory assistance in flight safety oversight functions.	49
3.	OUTPUTS PRODUCED AND OBJECTIVES ACHIEVED	50
3.2	Legal Issues.....	50
3.3	Safety Oversight.....	51
3.4	Services	51
3.5	Computers and Equipment.....	51
3.6	Quality Management.....	52
3.7	Training.....	52
3.8	Reorganization.....	52
3.9	Various other achievements.....	52
4.	FINDINGS AND LESSONS LEARNED.....	53
4.1	Problem areas covered by this project include:.....	53
5.	RECOMMENDATIONS.....	53
Boxes.....	.....	55



PROJECT TERMINAL REPORT

EXECUTIVE SUMMARY

ICAO TCB and the Directorate General of Civil Aviation (DGCA) of India agreed a six month project for Assistance in the Enhancement of Flight Safety Oversight. The project involves one Flight Safety Expert, one Flight Operations Expert, and one Airworthiness Expert to be stationed with the DGCA in New Delhi.

Mainly based on the shortcomings identified in the ICAO USOAP Audit of 2006, the project focused on improvements in efficiency, performance, and capability of the organization and the staff in the Safety Oversight Program, including a review of Indian Civil Aviation Legislation.

This interim report covers the Project Document Activities; namely,

Activity 1.1- Comparison of Indian Civil Aviation Legislation and ICAO Annexes 1, 6, and 8. Identification of Deficiencies;

Activity 1.2 - Review the functions of the DGCA Directorates, review the job description of personnel, and recommended revisions, as required;

Activity 1.3 - Assess the ability of existing DGCA flight safety inspectors to perform fully the required inspections and approvals of air operators, MROs and provide recommendations on the numbers and types of additional personnel needed and how urgently they are required;

Activity 1.4 - Provision of short practical training courses as practical within the limited timeframe of the project to the fresh direct recruits in the slight safety oversight workforce of DGCA.

Activity 1.5 - Provision of on the job training to the newly contracted DGCA inspectors through provision of advisory assistance in flight safety oversight functions.

The report on Activity 1.1, the comparison of Indian Legislation and ICAO Annexes has been prepared in five (5) parts: Introduction, Annex 1, Annex 6, Annex 8, and Recommendations.

It was noted during the review that ICAO **Annex 6** has been copied verbatim and published as Indian Civil Aviation Requirements. EASA Part 145, 21, and 147 have been amended to accommodate the Indian environment, and when published will meet or exceed ICAO **Annex 8**. The Aircraft Rules and several CARs cover Pilot licensing in a comprehensive manner. The Aircraft Rules, 1937 and CAR 66 cover AME licensing, and meet or exceed ICAO **Annex 1**.

The fact that the DGCA is copying the ICAO Annexes has resulted in findings by this Project against the regulations, but it cannot be stated that Indian Legislation does not meet the intent of these Annexes. There are a number of duplications, omissions, and conflicts with the Aircraft Rules in the CAR's.



PROJECT TERMINAL REPORT

A complete re-write of the regulations should be carried out by an expert team capable of working full time on the project, and that project should bring what is now called The Aircraft Rules, 1937 and the Civil Aviation Requirements together into a single document called the Civil Aviation Regulations of India. This will require Government approvals due to the Gazetted status of The Aircraft Rules.

In order to accommodate the short-term recommendations outlined in the Project Activities Report (separate cover) and make full use of existing resources, it is recommended to re-organize the CAA (DGCA), re-align responsibilities within the organization, introduce systemic changes to improve efficiencies and performance, and make several amendments to The Aircraft Act and The Aircraft Rules.

Flight Standards (Flight Operations) will become the central office for the Air Operators Permit (AOP), and all audits, enforcement, and other approvals will pass through this office. It must have a senior manager with a solid regulatory perspective and not an operational perspective. An ATPL with commercial jet flying experience should be a requirement for the DDG Flight Standards, however, the ATPL does not have to be current or valid.

It is recommended that the Regional Offices and HQ plan activities and responsibilities and organize in line with Large Aircraft and Small Aircraft as defined by ICAO, rather than the present system of Scheduled and Non-Scheduled Operators.

Everyone will benefit from hiring some of the number of CPL/ME/IR graduate pilots presently without employment in every Region. These CPL pilots (after regulatory training) could take all responsibility for small aircraft operations, including the Flying Institutes, and much of the work in Large Aircraft division.

It will be necessary to amend job descriptions to reflect the new organization and new responsibilities. The primary office of responsibility for this project should be the HR Department, and those files should end up with a complete volume of job descriptions and responsibilities in one source. The HR Department should be more visible within the DGCA and an updated HR Manual produced.

The manpower levels of the Kaw Committee Report, March 2006 are agreed by this review; however the distribution of manpower should be reviewed and industry growth will change the requirement. There should be a re-alignment of Certificate responsibilities in Headquarters and the Regional Offices; that is, the Regional organization completely overhauled to provide the Industry with day-to-day service and oversight. In summary, Headquarters should be responsible for policy and legislation, and Regional Offices are responsible for Implementation of policy and legislation face-to-face with the Operator.

The Recommendations of ICAO IND/08/813 have been presented to the Government and a decision to implement the recommendations for an independent CAA has been made. The recommended independent CAA will make substantial differences in human resource, training, and remuneration of employees if not changed to adjust to assumed Indian operational requirements. India should not waver from successful international standards. It is recommended that all efforts be made to make this change as quickly as possible.



PROJECT TERMINAL REPORT

It is our opinion that the government and the industry are ready at this time for fundamental changes in the way regulatory safety oversight is conducted. There must be a commitment to take advantage of that willingness to make essential changes.

As the DGCA moves to an independent authority, the practise of promotion by seniority must be abolished and replaced with a system of competition for positions available. This will ensure that qualified staff are promoted to senior and important positions in the Regulatory Authority.

IND/07/816 WORKPLAN

	MONTH								
	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN 2011
<p style="text-align: center;">Activity 1.1</p> <p>Review the safety oversight rules, regulations and procedures and identify the need for their updating if, and as, needed, to conform with the latest ICAO SARPs/guidelines and national requirements.</p> <p>(FSE/PC)</p> <p>Deliverable: A report outlining the findings of the review and making recommendations on changes to the Rules and Requirements.</p> <p>Timeframe: 3 Months</p>	XXXX	XXXX	XXXX	XXXX					
<p style="text-align: center;">Activity 1.2</p> <p>Review the functions of the DGCA Directorates responsible for flight safety oversight and those of the Regional and Sub-Regional Offices and the job description of personnel and propose revision, if and as required.</p> <p>(FSE/PC)</p> <p>Deliverable: A report outlining the findings of the review and making recommendations on changes to the Organization, Job Descriptions, Policy and Procedures.</p> <p>Timeframe: 3 Months</p>		XXXX	XXXX	XXXX					



PROJECT TERMINAL REPORT

	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	JAN 2011
<p style="text-align: center;">Activity 1.3</p> <p>Review and assess the ability of the existing DGCA flight safety oversight inspectors and personnel to perform fully the required inspections, surveillance, licensing and approvals of air operators, aircraft maintenance organizations, and provide recommendations on the updating of numbers and types of additional personnel needed and how urgently they are required.</p> <p>(FSE/PC, FOE, AWE)</p> <p>Deliverable: A report outlining the findings of the review and making recommendations on changes to the Procedures and Staffing requirements.</p> <p>Timeframe: 3 Months</p>			XXXX	XXXX	XXXX				
<p style="text-align: center;">Activity 1.4</p> <p>Provision of short practical training course(s) as practicable within the limited time-frame of the project to the fresh direct recruits in the flight safety oversight workforce of DGCA.</p> <p>(FOE, AWE)</p> <p>Deliverable: Training courses or workshops, as time permits. At a minimum, one operations and one airworthiness session over several days each.</p> <p>Timeframe: 6 Months</p>				XXXX	XXXX	XXXX	XXXX	XXXX	
<p style="text-align: center;">Activity 1.5</p> <p>Provision of on the job training to the newly contracted DGCA inspectors through provision of advisory assistance in flight safety oversight functions (inspection, surveillance and certification)</p> <p>(FOE, AWE)</p> <p>Deliverable: OJT will be provided during visits to airports locally and in the regions. Every new inspector will be required to attend at least one OJT session.</p> <p>Timeframe: 6 Months</p>				XXXX	XXXX	XXXX	XXXX	XXXX	



PROJECT TERMINAL REPORT

<p style="text-align: center;">Activity 2.1</p> <p>Review air operators' and AMO's Corporate Safety Management Manuals that incorporate, inter-alia, the acceptable levels of safety for their acceptance by DGCA.</p> <p>(FSE/PC)</p> <p>Deliverable: Review of two AMO SMS Manuals and a report on acceptance of the manual and the acceptable level of safety proposed in the manual.</p> <p>Timeframe: 1 Months</p>					XXXX	X			
<p style="text-align: center;">Activity 2.2</p> <p>Develop Flight Safety related draft inputs for State's Safety Program defining: Policy and Objectives; Risk Management; Safety Assurance; Safety Promotion; and the Acceptable Level of Safety.</p> <p>(FSE/PC)</p> <p>Deliverable: Draft inputs to the Indian SSP, as many as time allows.</p> <p>Timeframe: As time allows, expected to be near the end of the project to ensure higher priority items a completed.</p>					XXXX	X			
<p style="text-align: center;">DGCA Request</p> <p>Member of the Committee to the Civil Aviation Advisory Council</p>	MAY	JUNE XX	JULY XXXX	AUG XXXX	SEPT XXXX	OCT	NOV	DEC	JAN 2011



PROJECT TERMINAL REPORT

1 INTRODUCTION

This report covers Activities 1.1, 1.2, 1.3, 1.4, and 1.5 of Project IND/07/816. A more detailed breakdown of Activities 1.3, 1.4, and 1.5 is provided in ANNEX A and B in Final Reports from the Flight Operations Expert and the Airworthiness Expert. Additional Activities of the Project will be found in ANNEX C to this report.

1.1 Background

- 1.1.1 Mainly based on the shortcomings identified in the ICAO USOAP Audit of 2006, the project focused on improvements in efficiency, performance, and capability of the organization and the staff in the Safety Oversight Program, including a review of Indian Civil Aviation Legislation.
- 1.1.2 There were 70 findings by the USOAP Audit that required attention by the DGCA. There had been some activity to correct deficiencies; however, some of the findings were still outstanding.
- 1.1.3 During the last decade Airlines operating in India have increased, and the Industry continues to increase by 13% per year. The expansion of Private airlines to international routes and in addition of 400 aircraft over the next 5 years will pressurize the DGCA.
- 1.1.4 The increased use of short-haul B737 and A320 sized aircraft has given greater importance to safety oversight and the development of aerodrome infrastructure in India.
- 1.1.5 There have been five hull loss accidents involving transport category aircraft in the past five years in India.

1.2 Strategy Adopted

ICAO TCB and the DGCA of India agreed a six month project for the Assistance in the Enhancement of Flight Safety Oversight in India. The project involves one Flight Safety Expert, one Flight Operations Expert, and one Airworthiness Expert to be stationed with the DGCA in New Delhi.

- 1.2.1 The following strategy was adopted:
 - a) Ensuring that national legislation related to the provision of services to aviation is harmonized and aligned with the ICAO provisions;
 - b) Promoting greater cooperation between the authorities and providers, and the corresponding civil aviation administrations, air traffic service providers and other stakeholders at the national level;



PROJECT TERMINAL REPORT

- c) Ensuring that the adequate number of suitably trained and qualified and technical personnel are available, and that they are provided with the means to sustain and enhance their professional qualifications through recurrent and specialized training courses, workshops, etc.;
- d) Promoting greater harmonization of regulations, policies and procedures concerning the implementation of the requisite facilities and services, benefiting from the experience and achievement of the developed States in Europe and North America;
- e) Assisting in developing Safety Management Systems and State Safety Programs in line with relevant ICAO policies and provisions.

1.2.2 A reorganization of the DGCA was recommended to be used as a vehicle for change management, to change the culture of the Directorate and to improve efficiencies and productivity of existing resources in regard to the Safety Oversight Program.

1.3 More specifically, the following Activities were to be pursued:

- 1.3.1 Activity 1.1 - Comparison of Indian Civil Aviation Legislation and ICAO Annexes 1, 6, and 8. Identification of Deficiencies;
- 1.3.2 Activity 1.2 Review the functions of the DGCA Directorates, review the job description of personnel, and recommended revisions, as required;
- 1.3.3 Activity 1.3 Assess the ability of existing DGCA flight safety inspectors to perform fully the required inspections and approvals of air operators, MROs and provide recommendations on the numbers and types of additional personnel needed and how urgently they are required;
- 1.3.4 Activity 1.4 Provision of short practical training courses as practical within the limited timeframe of the project to the fresh direct recruits in the slight safety oversight workforce of DGCA;
- 1.3.5 Activity 1.5 Provision of on the job training to the newly contracted DGCA inspectors through provision of advisory assistance in flight safety oversight functions;
- 1.3.6 Activity 2.1 Review of Operators and AMO SMS Manuals;
- 1.3.7 Activity 2.2 Develop draft inputs to the Indian SSP Manual.



PROJECT TERMINAL REPORT

2. PROJECT IMMEDIATE OBJECTIVES AND RELATED OUTPUTS

ACTIVITY 1.1 - COMPARISON OF INDIAN CIVIL AVIATION LEGISLATION AND ICAO ANNEXES 1, 6, AND 8.

PART I - REVIEW OF ICAO ANNEXES AND INDIAN CIVIL AVIATION LEGISLATION INTRODUCTION

PURPOSE

The purpose of this report is to make recommendations for change within the Indian Directorate General Civil Aviation (DGCA) following a review and comparison of ICAO Annexes and Indian Civil Aviation Legislation. Each Annex is discussed separately in Parts I through V to this Section of the Report. There has been an effort to limit the number of examples of problems in this report because staff tend to focus on the example rather than the problem. This report is prepared to recommend fundamental changes in Policy and Procedures, and not to point out examples of errors made in the past.

EXECUTIVE SUMMARY - INTRODUCTION

A review and comparison was done between ICAO Annex 6 (International Commercial Air Transport), Annex 8 (Airworthiness of Aircraft), Annex 1 (Licensing) and Indian publications on the same subjects, including: The Aircraft Act, The Aircraft Rules, Civil Aviation Requirements, Air Safety Circulars, Aeronautical Information Circulars, Airworthiness Advisory Circulars, AI Circulars, and the Indian AIP.

Generally, the bulk of Indian civil aviation legislation is difficult to navigate. There are many references to the same subject. If something is not done to normalize the situation today, it could quickly become difficult for the Industry to understand the hierarchy of the law or what standards they must follow. Duplication and conflicting standards are slowly being introduced into civil aviation legislation, and omission of important safety issues is already evident.

In order to accommodate the recommended changes in policy and procedures, it is recommended to re-organize the DGCA, re-align responsibilities within the organization to the Certificates issued, and make several amendments to The Aircraft Act and The Aircraft Rules.

It is recommended that the Civil Aviation Requirements undergo a complete detailed review to remove all duplication and conflict.



PROJECT TERMINAL REPORT

It is recommended that terms Scheduled and Non-Scheduled no longer be used to determine DGCA priorities; it should be Large Aircraft and Small aircraft. More emphasis should be placed on General Aviation and Rotary Wing. It is recommended that DGCA organize around the Large Aircraft (>5700kg) and Small Aircraft (<5700kg.) and Rotary Wing Aircraft.

Recommendations are found in Part V of this Activity 1.1 report.

INDIAN CIVIL AVIATION LEGISLATION

The Aircraft Manual (India)

Contained in the Aircraft Manual (India) are The Aircraft Act, 1934 and Rules made there under. The Aircraft Act was last amended in 1994. The Aircraft Rules, 1937 were last amended in September 2006. Due to the process in Parliament of amending an Act of Parliament, it could take a year to amend the Act. The Rules are amended by the Minister of Civil Aviation and passed through Parliament in approximately six months.

Some important subjects that very seldom need to be amended should be placed in the Aircraft Rules; for example, Rules of the Air.

Civil Aviation Requirements

Neither of the Act or the Rules can keep pace with some of the changing environment of aviation safety. The Civil Airworthiness Requirements (CAR) were issued by the Director General Civil Aviation in the 1970's to fill the gap and provided quick response to Airworthiness safety issues in the Industry. The name was later changed, and today the CARs are referred to as Civil Aviation Requirements, covering the entire spectrum of aviation safety oversight in India.

Although the CARs have been legalized through a series of Ministerial documents over the years, they are still not on equal footing with The Aircraft Rules in the hierarchy of aviation law in India. A CAR cannot conflict with a Rule, or if it does, the Rule should override the CAR. The CARs are generally up to date with international standards and the demands of the Industry, and easier to work with along with the Advisory Material published under the signature of the DGCA.

The Industry can become confused about the hierarchy of aviation law in India if the CARs are not enacted in The Aircraft Act, 1934.

The CARs should only contain subject matter that is not covered by the Rules, and can therefore be quickly amended without fear of conflict with the Rules.

Problems with the CARs:

- They evolved out of necessity and there is no formal policy to control the development of new requirements, except a general rule that the CAR cannot conflict with The Aircraft Act or The Aircraft Rules;



PROJECT TERMINAL REPORT

- There is duplication of subject matter within the CARs, and in some cases omission. This may be due to the fact that there is no formal policy and procedures for development of the CARs, such as the formal Notice of Proposed Rule Making in the FAA. Each Directorate writes their own CARs as and when considered necessary by that Directorate, with a limited 30-day time period for Industry feedback.
- There is conflict of information between the CARs on the same subject. There may be inadequate inter-face for comments between the Directorates and the Industry in the development of new CARs. There is conflict between the CARs and The Aircraft Rules.

While comparing Annex 6 with Indian Civil Aviation Legislation, it was noted that some Standards of ICAO (SARPs) were not covered in detail in The Aircraft Rules nor in the CARs, but are mentioned in Air Safety Circulars and Aeronautical Information Circulars; e.g., Air Safety Circular No. 7 of 1994 on instructing passengers during an emergency.

Some limited examples of findings in the legislation:

1. CAR, Section 3, Series C, Part II (1 March 1994). This CAR is in conflict with The Aircraft Rule 134, which states a Permit for Air Transport Services will be issued in accordance with Schedule XI of The Aircraft Rules. Schedule XI of the Rules makes no mention of the need to also comply with CAR Section 3, Series C, Part II. Can an applicant obtain an AOP if in compliance with only Rule 134? The Aircraft Rules are higher in the hierarchy of aviation law in India, and there should be no conflict.
2. The publication of CAR Section 2, Series O, Part II (Operation of Commercial Air Transport – Aeroplanes) is a copy of Annex 6 with minor amendments. The publication of CAR Section 2, Series O, Part II provided material that was missing in earlier CARs (International Commercial Air Transport – Aeroplanes). However, with the publication of the new CAR, other CARs were not cancelled or amended, and there was suddenly a lot of duplication and some conflict within and between the other CARs.
3. Advisory Material is being used in some cases to regulate the Industry. Mandatory documents issued under The Aircraft Act 5A should have a different title than advisory material in order not to confuse the Industry and to make mandatory issues very clear. This type of notice to the Industry should be moved into the Regulations as quickly as possible.

ACTIVITY 1.1 REPORT STRUCTURE

The report on a comparison between the ICAO Annexes and Indian Legislation is presented in five parts. This Introduction is Part I. Parts II through IV provide comments on a comparison with Annex 1, 6, and 8 from ICAO, and Part V contains Recommendations compiled as a result of that review.

Note: The term Civil Aviation Inspector (CAI) will be used throughout and recommended to the DGCA for identification of all inspectorate staff. This is considered a profession, and a person must be trained and qualified to be a CAI just as a pilot needs to be or an AME needs to be trained and qualified.



PROJECT TERMINAL REPORT

PART II COMPARISON OF ANNEX 1 AND INDIAN CIVIL AVIATION LEGISLATION

EXECUTIVE SUMMARY

A review and comparison between ICAO Annex 1 (Personnel Licensing) and Indian legislation on the same subjects, including: The Aircraft Act, The Aircraft Rules, Civil Aviation Requirements, Air Safety Circulars, Aeronautical Information Circulars, Airworthiness Advisory Circulars, AI Circulars, and the Indian AIP was conducted to determine if changes or improvements are necessary.

The Indian legislation as written meets or exceeds the ICAO Annex 1 – Personnel Licensing. The changes mentioned hereafter are to improve the delivery and implementation of existing legislation, and not to meet the standards of Annex 1.

The Personnel Licensing standards are prescribed in the Aircraft Act [5 (2) (g)], the Aircraft Rules [38 – 48, and Schedule II], and the CARs [Section 7, Series B – X]. There is no conflict of subject matter between the three documents, except the Validation of Foreign Licenses [Rule 45 and CAR Section 7, Series G, Part II]. Otherwise, the Rules and CARs cover the personnel licensing subject adequately.

The implementation of the CARs and the provision of service to the Industry are lacking sufficient resources, effective procedures, and firm discipline. The flow of work can be greatly enhanced with the introduction of computerized examinations. A licensed person should have only one reference number and one electronic file from the day of introduction to the last day of service, including Medical and Licensing, and any other event during the career.

The Training and Licensing Directorate should be responsible for all licensing issues (Pilots, Engineers, Dispatchers, ATC) as well as the Central Examination Organization, Abinitio Pilot/AME Training, and Medical.

There are instances where the licensing standard may have been reduced by DGCA Concessions to accommodate a problem in the Industry. It is at times of greatest demand on resources that the limits prescribed in the rules protect aviation safety, and there should never be a time when operational pressures justify a reduction in safety standards outside normal practices (Exception: A New Operator or New Aircraft Type is normally given Concessions for short periods).

In order to accommodate the recommendations outlined in this report, it may be necessary to re-organize the DGCA, re-align responsibilities within the organization, introduce systemic changes to improve efficiencies and performance, and make amendments to The Aircraft Act and The Aircraft Rules. It is recommended that the Civil Aviation Requirements undergo a complete detailed review to remove all duplication and conflict.



PROJECT TERMINAL REPORT

Indian Civil Aviation Legislation

The Aircraft Manual (India)

Contained in the Aircraft Manual (India) are The Aircraft Act, 1934 and Rules made there under. The Aircraft Act was last amended in 1994. The Aircraft Rules, 1937 were last amended in September 2006. The Aircraft Rules, Schedule II, Personnel Licensing has been amended in 04/10/1993; 28/06/2001; 11/07/2001, 16/06/2003; and 17/03/2006. Personnel Licensing legislation does not change as often or as quickly as other types of legislation, and therefore is the type of legislation that should be contained in the Aircraft Rules.

Civil Aviation Requirements

The subject of Qualifications for Personnel Licensing is covered in the Aircraft Rules, 1937 (Schedule II). The CARs outline the procedures for examination, course syllabus, medical information, and provides information on subjects not expanded in the Rules.

The implementation of the regulations must be reviewed. Training for Inspectors in the basics of implementing regulations is required.

Indian Pilot License

Commercial air service in India should be provided by crews holding Indian licenses and certificates. There are several reasons for this, including language and cultural issues. There are adequate numbers of graduate Commercial Pilot students, but experience is lacking.

The preference for Indian flight crew is reflected directly in the Cabin Crew legislation:

12.0 Expatriate Crew – Training Program

“The training of the expatriate crew shall be commenced only after necessary clearances for foreign personnel seeking employment in India are obtained. The expatriate crew shall be subjected to a full aircraft type initial training, which shall include First Aid, Human Factors and Crew Resource Management as per approved syllabus. No expatriate cabin crew member shall be used for operation on the domestic flights.”

No expatriate cabin crew on domestic flights.

The requirements contained in the Rules and the CARs for obtaining the Indian Pilot License meet international standards.



PROJECT TERMINAL REPORT

Airline policy must be reviewed to ensure that the airlines allow a graduate CPL, Multi, IR with Frozen ATPL to be provided an aircraft type rating and sit in the right hand seat (with cover from a qualified FO) until he has sufficient experience to take the flight as crew.

The airlines hiring the new CPL graduate would provide the type rating. This would move hundreds of young Indian pilots into the stream toward the left hand seat. There is presently a shortage of Indian Captain (P1) pilots, and ex-pats with Validated licenses are being used to fill the gap. This shortage was caused by poor planning by airline senior management and the government, and the industry must learn from these lessons in order to keep pace with industry growth.

Validation of Foreign Pilot Licenses

This subject is discussed because it is a good example of the weaknesses in the DGCA licensing systems, and how similar problems may exist in other Directorates outside of Licensing on other subjects. No matter how well the subject is covered in the written word of the law, the implementation must be carried out as intended to fullest effect. This subject came to light during discussions of the Committee to the Civil Aviation Safety Advisory Council and exposed problems in implementation of the regulations. A situation arose whereby the prescribed regulations adequately cover the subject, but implementation of the regulations is extremely misguided.

Foreign pilots were brought in as a necessity to fill the need for experienced pilots. Their licenses were Validated and they were pressed into service, but as time went by the requirement to renew their license and perform a check ride for the currency of the type rating became a burden. The Industry could not keep up with the three month limit prescribed in the CAR. The DGCA had two choices; namely, strictly enforce the rules, or change the rule to accommodate the Industry demands. In August 2009 an amendment to the CAR was published, reducing the standard.

A Validation is not a license in itself, as some believe. The lack of an understanding in the definition and purpose of a Validation is the root cause of the problem in India. (It was being used to control the number of employed foreigners, which is the business of another Ministry.) All related problems are presently being addressed in a dedicated manner by the DGCA.

When this Project became involved, there were several Captains flying daily with expired licenses for many months.

Processing the Indian Pilot/Engineer License

Interviews with Indian Captains and Aircraft Maintenance Engineers reveal the difficulty and the time consumed in obtaining or amending a license in India. The bureaucracy involved in writing exams and the length of time it takes to get exam results are the biggest complaint. If there is going to be a shortage of Indian pilots and engineers, how can we streamline the licensing process to accommodate the increase in licensing demand? (One airline alone has more than two hundred pilots flying on validation certificates who will be applying for an Indian Pilot License.)



PROJECT TERMINAL REPORT

The Licensing of Personnel Directorate is fractured, and the work tends to fall into the applicable Operational or Airworthiness Directorate (pilots do pilot licensing, engineers do engineer licensing, CEO does examinations, etc.). This is one way of organizing the work, but not the only way.

A single Training and Licensing Directorate (Pilots, Engineers, Dispatchers, ATC) that includes pilot/AME training schools, the Central Examination Organization and Medical would be better equipped to completely revamp the license examination process for better productivity and less bureaucracy. All licensing handled by one Directorate having a small number of experts from each technical field, supported by a larger Administrative group.

The increase in the sharing of a computerized personal data base between Licensing and the Central Examination Organization would be of great benefit. Also, a single exam data base would develop random exams on-line in minutes rather than days, and would increase efficiencies and reduce the time waiting to write exams. Some of this can be done with existing resources with immediate improvements.

Designated Examiners

The DGCA Designated Examiners (Airline Captains and CFI's) do not receive adequate specific training from the DGCA on duties and responsibilities in representing the DGCA during the examination process. Some training is provided, but it is inadequate. The DGCA does not audit (or check) Designated Examiners on an annual basis to ensure quality standards are maintained and ensure fairness in the system.

The Designated Examiner is the core of the oversight of the Licensing System in terms of continuation or renewal of licenses and ratings, and they are not controlled by or trained by the DGCA in a disciplined structured manner. It is recommended that all Designated Examiners (Airlines and Training Academy's) be trained and qualified to represent the DGCA, and that they be re-qualified on an annual basis at Designated Examiner Meetings held by the DGCA.

The reference to "Instructor/Examiner" should be banned, and only a reference to either an Instructor or a reference to an Examiner be used in all DGCA documentation. The total separation of duties and responsibilities must be enforced. One reports to the Airline, and one reports to the DGCA.

Aircraft Maintenance Engineer

The DGCA is reviewing the EU licensing legislation Part 66 with a plan to issue an Indian CAR 66 as soon as the review is complete. It is recommended that CAR 147 be issued as published in Europe to bring the Indian legislation into line with the latest international standards. The proposed Indian legislation removes all delegated authority from training institutes to conduct AME Licensing Examinations. If delegated authority to the AME schools to conduct some basic license examinations is removed from the Indian CAR, it would not reduce the workload on the DGCA.



PROJECT TERMINAL REPORT

ICAO Annex 1 is not a good standard for Aircraft Maintenance Engineer (AME) licensing. The Annex is completely taken up with Aircraft Operations and very little regard given to the maintenance support of the equipment. As a result, the Indian CAR Section 2, Series L, Part I based on EASA legislation is more complete and comprehensive than Annex 1.

The proposed Indian legislation CAR 147 removes all delegated authority from training institutes to conduct AME Licensing Examinations.

AME License

The initial issuance of an AME license is done by the Headquarters Airworthiness group, while any renewal to the license is done by the Regional Airworthiness group. Neither of these groups is associated with nor part of the Training and Licensing Directorate (TLD). It should be a goal during Phase One of recommended changes in the DGCA to have all Licensing done by the TLD in the Headquarters and Regional Offices.

Cabin Crew Licensing

The DGCA does not license Cabin Crew. The crew are issued Certificate of Proficiency issued by the Operator whenever they are operating a flight (SEP card). The SEP Card must be carried at all times in service. It is recommended to continue this practice; however, there must be a much greater emphasis on Oversight by the DGCA. This includes the development of training material, presentation of the material, and the on-going surveillance of standards during operation.

Several CARs (e.g., Section 7, Series M, Part I) and the Aircraft Rules, 1937 (Rule 38(b)) cover the training and qualification of Cabin Crew in a comprehensive manner. The DGCA is involved with the airline in the certification process. Due to the number of licenses involved and the limited resources of the DGCA, it is recommended that this process continue.

Flight Dispatcher

CAR Section 7, Series M, Part II covers the subject of Dispatcher Certification in a comprehensive manner. The DGCA does not license Dispatchers. They are issued a Certificate of Proficiency issued by the Operator.

It is recommended that the DGCA issue a Dispatcher License in every case, even to existing Dispatchers. There must be a much greater emphasis on Oversight by the DGCA in this area.



PROJECT TERMINAL REPORT

Recommendations

Re-organize to a single Training and Licensing Directorate within the Regional and Headquarters DGCA Offices.

The Multi-Crew Pilot License has not been adopted by India due in part by the cost to the student to obtain the license. Many students are without sponsorship.

The DGCA has not adopted the International standard for a Frozen ATPL, which has proven to safe and efficient in many other countries. It is recommended that the DGCA adopt the Frozen ATPL policy in India, and revisit the question of Multi-Crew Pilot License.

Expand the eligibility scope of the proposed CAR 147 and delegate some examination authority to qualified Training Institutes under CAR 147.

See Part V of this Report for Recommendations.



PROJECT TERMINAL REPORT

PART III COMPARISON OF ANNEX 6 AND INDIAN CIVIL AVIATION LEGISLATION

ICAO ANNEX 6, PART I – INTERNATIONAL COMMERCIAL AIR TRANSPORT - AEROPLANES

Part I of Annex 6 is a comprehensive document in general terms. It provides headings for subjects to be considered by the State when compiling national aviation legislation; but there are many omissions of a detailed nature that the State is expected to expand in safety standards applicable in that specific State.

A good recent example of the comprehensive coverage of the legislation is JAR-OPS, soon to be EU-OPS, and the associated Advisory Material.

Indian Civil Aviation Legislation

Indian civil aviation legislation meets or exceeds ICAO Annex 6; however, there are a multitude of documents that cover all sides of a subject. This becomes confusing and burdensome to the Industry.

CAR Section 2, Series O, Part X prescribes the Operation of Commercial Air Transport - Aeroplanes. This CAR is a copy of ICAO Annex 6, Part I. It is generally a stand-alone document; however, there are other CARs and advisory material related to commercial air transport operations in India.

The Air Operators Permit (AOP) legislation is not found in a single document, but found in many. There are two general aspects to the Air Operators Permit; which are, firstly the application at the Ministry level for a license or approval to do business as an air carrier (domestic or international) that results in a No Objection Certificate (NOC), and the second is the application for an AOP to the DGCA, which includes the preparation of manuals and the on-going oversight for the Air Operators Permit.

These two completely different subjects are presented together in the same regulation. This is very confusing because the written material can jump from the requirements for the business license to the application for the AOP in the same paragraph. They must be separated in the CARs and the responsibility for each (NOC and AOP) identified within the DGCA Organization. Then there will be two separate references, one for the application for the NOC or approval to do business in aviation, and one for the application and on-going oversight of the Air Operators Permit. These two different responsibilities should be in separate Directorates within the DGCA; that is, the Air Transport Directorate for the business approval, and the Flight Standards Directorate for the Air Operator Permit.

Civil Aviation Requirement Section 2, Series A, Part IV briefly outlines the salient airworthiness requirements and the system under which the airworthiness control and the safety oversight is required to be exercised on the engineering activities by the operators and the DGCA officers. The CAR is issued under the provisions of Rule 133A of the Aircraft Rules, 1937 and Section A of the Aircraft Act, 1934 for information, guidance and compliance by the concerned agencies.



PROJECT TERMINAL REPORT

All Indian operators engaged in **Scheduled** air transport services for carriage of passengers, mail or cargo and maintenance organizations engaged in maintenance of aircraft and approved in accordance with CAR Section 2, Series E shall comply with the requirements of CAR Section 2, Series A, Part IV.

The airworthiness oversight and safety requirements are equally applicable to the operators of **Non Scheduled** (Passenger/Cargo) air transport service who should follow the requirements as applicable, keeping in view the scope and extent of their operations.

This separation of Scheduled and Non-Scheduled airlines is unusual in international regulatory offices. The aircraft are either Transport Category aircraft (Large Aircraft) or Non-Transport Category (Small Aircraft).

All operational safety requirements are the same for all commercial operators, except for ground support operations and ground infrastructure; for example permanent line maintenance coverage at destinations is required for scheduled airlines only, but pilot proficiency checks and cabin crew training are the same for all.

The DGCA should have a single core of DGCA Inspectors for Large Aircraft in the Regional Offices providing safety oversight for commercial and private operators of Transport Category aircraft, and a Small Aircraft Inspectorate for commercial and private aircraft under 5700 kg. This provides maximum utility of existing resources.

All commercial operators have to implement CAR Section 2, Series A, Part IV, therefore, there is no need to have two articles (Scheduled/Non-Scheduled) that imply they are different.

Comparison between CARs and Operations Manuals

The DGCA publication Guidance Material to the Contents of An Operations Manual (Aeroplane) was issued by the DGCA for use by Operators. The contents of all Indian Air Operators Manuals must follow the structure of the Guidance Material after 30th June 2004.

Operations Manuals were reviewed and they follow the Guidance Material to the letter. The structure was identical. The Guidance Material to the Contents of An Operations Manual (Aeroplane) follows exactly the manual content and structure recommended in Annex 6, Appendix 2. Therefore, there is no mention of Final Reserve Fuel or Medical Oxygen Bottles in the standard. The DGCA should not copy the ICAO Annexes verbatim.

Multitude of References

For new organizations seeking permission to commence flight operations or maintenance activities, it shall be a prerequisite for grant of the approval to furnish information confirming that they have established the necessary system and have adequate qualified manpower and infrastructure to implement



PROJECT TERMINAL REPORT

the airworthiness regulation and in-house oversight of their engineering activities as stipulated in CAR Section 2, Series A, Part IV. Concerned DGCA officers shall also exercise the safety oversight of engineering activities of the organizations as described in CAR Section 2, Series A, Part IV.

Various statutory/regulatory documents, namely the Aircraft Act 1934, the Aircraft Rules 1937, Aeronautical Information Publication (AIP), Civil Aviation Requirements (CAR), Aeronautical Information Circular (AIC), stipulate the safety and airworthiness requirements applicable to different type of operations and maintenance activities that shall be complied with by the concerned organization.

Rule 155A of the Aircraft Rules, 1937 requires that an operator shall have access to an adequate organization for maintenance of aircraft. Rule 133B specifies the conditions for approval of an organization. Besides the requirement of maintenance organization, in accordance with Rule 134 of the Aircraft Rules, no person shall operate any air transport service in India without obtaining the necessary permit for operating such services. The operating permit shall be maintained current and valid and the operations shall be conducted within the scope and provisions of the permit.

In accordance with Rule 140 of the Aircraft Rules, 1937 all operators shall comply with the stipulated engineering, inspection manual and safety requirements to ensure that the passenger and the aircraft are protected at an adequate level of safety throughout the operation.

Leased Aircraft: The requirements for maintenance and safe operation of foreign aircraft leased for operation by or on behalf of Indian operators for public transport are laid down in CAR Section 3, Series 'C' Part I under the provision Rule 133A of the Aircraft Rules, 1937 and Section 5A of The Aircraft Act, 1934.

Note: For an example to the reader, much of the above text was taken from CARs to indicate the complex structure of the Act, the Rules, the CARs, and the Circulars that all are considered mandatory in India. The CAR Committee must bring all of this legislation together, develop a more simple numbering system for the CARs, and put subjects in single source documents, wherever possible.

CAR Section 2, Series O, Part X follows the trend of many CARs; that is, at the time it was produced and published it was done by Airworthiness, even though most of the subject matter is the responsibility of Flight Operations under the AOP. It is not known if Flight Operations had input to the CAR or not, but Operations would be the Office of Primary Responsibility for this CAR under the AOP and Operation Specifications.

A quote from the CARs: “The operator may have his own maintenance organization approved by the DGCA in accordance with Rule 133B or may contract his maintenance work to another DGCA approved organization. **The approved organization shall have to have its own approved maintenance program, quality control and safety oversight setup.**”

Statement: If this requirement means the AMO is to have its own aircraft maintenance program, it exposes a weakness in the DGCA in a basic understanding of aviation legislation. The maintenance program being used can **only** be the program of the operator approved for that aircraft registration number. It is the Operator’s program. AMO’s never have their own maintenance program.



PROJECT TERMINAL REPORT

ICAO ANNEX 6, PART II – GENERAL AVIATION

ICAO defines General Aviation as: An aircraft operation other than a commercial air transport operation or an aerial work operation. Basically, that means a private aircraft for personal use or a company aircraft used exclusively for the transport of company personnel and goods.

The same definition has not been adopted in India. It is recommended that India adopt the ICAO definition of General Aviation.

Indian Civil Aviation Legislation

CAR Section 2, Series O, Part II prescribes the Operation of General Aviation Aeroplanes. Along with this CAR there are several references in the Rules and Advisory Circulars.

The Indian civil aviation legislation meets or exceeds ICAO Annex 6, but immediate increased attention is required in the safety oversight of General Aviation in India.

Directorate General of Civil Aviation lays down the standards and procedures for ensuring compliance with various airworthiness requirements and continuous monitoring of approved organizations. DGCA regional and sub-regional officers carry out surveillance checks to ensure that the standards laid down are enforced.

The Regional and Sub-Regional offices give feed-back to headquarters regarding any weaknesses in the systems, and also suggested corrective actions. DGCA headquarters, thereafter, takes necessary corrective action under the Aircraft Rules/CAR to remove the system deficiencies.

It is recommended that the Regional Offices handle the corrective action through to completion, with no activity from Headquarters unless a suspension or cancellation of a certificate is recommended.

ICAO ANNEX 6, PART III – HELICOPTERS

Part III of Annex 6 is a comprehensive document in general terms. It provides headings for subjects to be considered by the State when compiling national aviation legislation. There are many omissions of a detailed nature that the State is expected to expand in safety standards applicable in that specific State.

Indian Civil Aviation Legislation

Indian civil aviation legislation meets or exceeds ICAO Annex 6 with a multitude of documents to cover all sides of a subject.



PROJECT TERMINAL REPORT

CAR Section 2, Series O, Part IV prescribes the Operation of Commercial Air Transport - Helicopters. This CAR is a copy of ICAO Annex 6, Part III. There is some Advisory Material related to the CAR, but it is generally a stand-alone document. There are other CARs and advisory material to direct the user.

The rotary wing industry in India has a very low priority in the DGCA, and only recently have four rotary CAI's been put in place. These are seconded staff. The DGCA has no one on permanent staff with rotary experience. Safety in the rotary wing industry is acknowledged throughout the world as being of the highest priority due to the operational environment, and has focused attention at most regulatory agencies.

One obvious difference in the Indian legislation, and something noted in all documents related to fixed wing and rotary wing operations, is Article 1.2 "Compliance by a foreign operator with laws, regulations and procedures of a State". For some reason the DGCA did not adopt this article and does not want anything to do with foreign aircraft in India. This was an ICAO Audit finding and the DGCA is now preparing to take on more responsibility for foreign aircraft in India.

CONCLUSIONS

ICAO Annex 6 Part 1

ICAO Annex 6, Part 1 is a guide for States to develop their own civil aviation legislation for Commercial Air Transport - Aeroplanes. Annex 6 provides an adequate minimum level of safety for those subjects covered by the Annex, however, several issues related to aviation safety are not discussed in the Annex and States are expected to develop their own requirements to cover these issues.

For example, the Annex does not define Minimum Reserve Fuel. The Alternate Fuel and the Final Reserve Fuel must be defined in legislation as being different.

Another example is First Aid Oxygen, which is pure undiluted oxygen in green portable bottles for medical reasons as well as other types of emergencies. Annex 6 defines Supplemental Oxygen required for flight above 13,000 feet, and 10 minutes Supplemental Oxygen for flights that cannot descend and maintain 13,000 feet within 4 minutes(4.3.8.2), but there is no mention of First Aid Oxygen (pure undiluted).

There are other examples of subjects not covered in the Annex, and it becomes obvious that any State using only Annex 6 as a regulation covering Commercial Air Transport would have serious safety shortfalls.

Due to the International input to Annex 6, the language used is not common in many countries when describing a standard. Oxygen requirements over 10,000 feet, 13,000 feet, and 25,000 feet are better understood in India than 700hPa, 620hPa, and 376hPa as defined in the Annex. The Indian legislation copied the words from the Annex exactly. States must take the time to amend the language to one that is easily understood in that State by the intended user.



PROJECT TERMINAL REPORT

Problems with the CARs (examples)

The following examples are taken from the review of Annex 6, Part 1, and are intended here to show why steps must be taken now to correct deficiencies and to indicate that to continue on the same course will eventually lead to a volume of legislation that the Industry will find unworkable.

The CARs are written by different Directorates at different times, and there is no primary controlling office. As a result conflicting requirements (old and new) go out to the Industry.

1. CAR Section 2, Series C, Part V implies that **only** Scheduled Airlines holding a CAR-145 Certificate are responsible for Reliability Programs. This statement conflicts with CAR Section 2, Series O, Part II, Art. 8.5.2, or CAR Section 2, Series C, Part I, Art 6.1 and 6.2, which clearly state that **all** Operators are responsible for Reliability.

There are some subjects duplicated in the CARs, and in some cases the CARs duplicate the Rules. For example:

1. CAR Section 2, Series C, Part V; CAR Section 2, Series C, Part I; CAR Section 2, Series D, Part II; and CAR Section I, Series F, Part IX all discuss to some degree maintenance programs and reliability programs. This is an opportunity where several CARs could be developed into one document.

2. CAR 2, A, I, Art 1.1 states about flying an aircraft with a Certificate of Airworthiness out of force: "...unless it is flown for the purpose of test for renewal of Certificate of Airworthiness...". This is very restrictive and does not allow for other possibilities. The Aircraft Rule 55 (4) and (5) on the same subject state otherwise and are more flexible with several other possibilities. The CAR is subordinate to the Rule, and there is conflict. One or the other of these requirements should be deleted or amended, and a single rule agreed.

3. The subject of refuelling aircraft with passengers on board is covered in the Aircraft Rules, 1937 and in two separate CARs (triplication). The subject should be deleted from the Rules and the duplication in the CARs cleaned up into one standard.

Civil Aviation Requirements Section 3, Section 5, Section 8, 'Standards' in Section 6, and many Section 2 subjects should be reviewed with the intent of combining into a single Section of the CARs for Flight Operations.

Recommendations

Recommendations are listed in Part V or this report.



PROJECT TERMINAL REPORT

PART IV COMPARISON OF ANNEX 8 AND INDIAN CIVIL AVIATION LEGISLATION

PURPOSE

The purpose of this Part is to make recommendations for change within the Indian Directorate General Civil Aviation (DGCA) following a review and comparison of ICAO Annexes and Indian Civil Aviation Legislation.

EXECUTIVE SUMMARY

A review and comparison between ICAO Annex 8 (Airworthiness of Aircraft) and Indian legislation including: The Aircraft Act, The Aircraft Rules, Civil Aviation Requirements, Air Safety Circulars, Aeronautical Information Circulars, Airworthiness Advisory Circulars, AI Circulars, and the Indian AIP was conducted to determine if changes or improvements were necessary.

India has issued CAR 21 and accepted the design airworthiness codes of the FAA and EASA which meet or exceed Annex 8, and has manufacturing of aeronautical products in Bangalore and other centres in accordance with the adopted standards; therefore, this review will only deal with Indian legislation related to Aircraft Maintenance Engineers (AME), Approved Maintenance Organizations (AMO), and the Certificate of Airworthiness.

ICAO Annex 8 is not a good example of comprehensive AME, AMO, or C of A legislation, and the DGCA is reviewing the European regulations. The result will meet and exceed Annex 8 requirements.

The DGCA will issue an amended Aircraft Rule 61 and CAR 66 to cover AME Licensing, CAR 21 for Airworthiness Standards, and CAR – M for Continuing Airworthiness. CAR 145 for AMO Certification was issued in 2005, amended in 2008.

CAR – M, CAR 21, and CAR 145 are similar to the EASA (JAR) legislation with some Indian differences. EU Part 66 is being used along with the associated Advisory Material to amend The Aircraft Rule 61 (requirements for application) and introduce CAR 66 (procedures for obtaining the license). This will provide good Airworthiness coverage in legislation.

INDIAN CIVIL AVIATION LEGISLATION

THE AIRCRAFT RULE 61 and CAR 66

The present and proposed Indian legislation on AME Licensing meets or exceeds ICAO Annex 1 and Annex 8 requirements. When CAR 66 is published, Engineers certifying for a CAR 145 Organization must hold an Aircraft Rule 61 License.



PROJECT TERMINAL REPORT

As noted in the review of Annex 1 and Indian legislation, it is recommended that the DGCA issue CAR 66 as it is published in Europe to remain in line with modern licensing legislation. It is also recommended that the delegation of some examinations be retained in the Indian CAR 147, which should be expanded to include all present AME schools. Those schools not meeting the CAR 147 standard should be closed.

CAR 145

The present Indian legislation on AMO Certification meets or exceeds ICAO Annex 8 requirements. CAR 145 is similar to the EU regulation, except for some amendments to reflect the Indian experience.

CAR - M

CAR - M is entirely an Operations document and implementation in the Airline is the responsibility of the Airline Operations Department. That is the main difference in CAR - M and CAR 145. One is an Operations document, and one is an Airworthiness document.

CAR - M, like all other documents drawn from ICAO and foreign legislation, has been amended to suit the Indian experience. The following are examples of that work; the first example is the EASA legislation and the second example being the Indian CAR-M, as follows.

EASA Example

For the purpose of this Part, the competent authority shall be:

1. **for the oversight of the continuing airworthiness** of individual aircraft and the issue of airworthiness review certificates the authority designated by the Member State of registry.
2. **for the oversight of a maintenance organization** as specified in M A Subpart F.
 - (i) the authority designated by the Member State where that organization's principle place of business is located.
 - (ii) the Agency if the organization is located in a third country.
3. **for the oversight of a continuing airworthiness management organization** as specified in M A Subpart G,
 - (i) the authority designated by the Member State where that organization's principle place of business is located if the approval is not included in an air operator's certificate.
 - (ii) the authority designated by the Member State of the operator if the approval is included in an air operator's certificate.
 - (iii) the Agency if the organization is located in a third country.
4. **for the approval of maintenance programs**,
 - (i) the authority designated by the Member State of registry.
 - (ii) in the case of commercial air transport, when the Member State of the operator is different from the State of registry, the authority agreed by the above two States prior to the approval of the maintenance program.



PROJECT TERMINAL REPORT

INDIAN CAR – M Example

M.1

For the purpose of this CAR, the competent authority shall be CAA.

1 for the oversight of the continuing airworthiness of individual aircraft and the issue of airworthiness review certificates,

2 for the oversight of a maintenance organization as specified in M.A. Subpart F,

3. for the oversight of a continuing airworthiness management organization as specified in M.A. Subpart G,

4. for the approval of maintenance programs.

Note: The intent of the rule has not been changed by the amendment, but the Indian DGCA organization is different from EASA and that had to be reflected in the legislation.

DGCA Primary Office of Responsibility for CAR-M

Where the CAR 145 AMO is an integral part of the Airline organization and the AMO has establish a Technical Support capability, and there are words reflecting an agreement on sharing CAMO responsibilities between the Airline and the AMO in the Maintenance Organization Exposition (MOE), then the AMO can assume responsibility for Continuing Airworthiness for the Airline.

DGCA Safety Oversight and the principle of Primary Office of Responsibility is not straight forward in this case. Under CAR - M, Continuing Airworthiness is an AOP responsibility of the Operator, however, the DGCA safety oversight of the CAR 145 Certificate is with the DGCA Airworthiness Directorate. These issues will have to be worked out during the re-organization process.

Safety Oversight of the Operators policy and procedures is best accomplished by a single combined Regulatory Audit of Flight Operations, Airworthiness, and Licensing, and the preparation of a single combined audit report to the Operator. The audit team leader shall be selected by the DGCA.



PROJECT TERMINAL REPORT

PART V RECOMMENDATIONS ON THE REVEIW OF LEGISLATION

PURPOSE

This Part is a compilation of Recommendations from the review of ICAO Annexes 1, 6, and 8 and a comparison with existing Indian Civil Aviation Legislation. It is intended to provide senior DGCA management with a single source of recommendations from this review.

EXECUTIVE SUMMARY - RECOMMENDATIONS

The Recommendations of ICAO IND/08/813 have been presented to the Government and a decision to implement the recommendations for an independent CAA has been made. The re-organization proposed in this paper will not interfere with the on-going work in the development of the new CAA, and should fit in completely with the requirements of that new independent organization.

It is strongly recommended that DGCA senior management take this opportunity in time to correct much of the existing legislation and bring Indian standards in line with international standards, and clean up many errors, omissions, and duplication between the various civil aviation legislative documents. If this work is not done at this time, with the anticipated growth of aviation in India, it may be that legislation will get too far behind the industry, and it will cost the airlines and the CAA more to catch up later, if ever.

More importantly, several key personnel in the DGCA will be leaving their posts in the near future. Nothing will impact the implementation of short-term changes and improvements than the loss of these staff. If changes are going to be made with existing resources, then the work must begin immediately.

The CARs have become complicated and therefore burdensome to the Industry. It is normal worldwide for new Regulations to take from four to six months for review and assessment before being published as formal legislation, but today a CAR can be put out in 30 days after very little review and comment. This leads to having duplicate CARs on the same subject, conflicting information, and omissions due to the lack of thorough review. Formal legislation should be more carefully considered.

It is our opinion that the government and the industry are ready at this time for fundamental changes in the way regulatory safety oversight is conducted. There must be a commitment to take advantage of that willingness to make essential changes.



PROJECT TERMINAL REPORT

RECOMMENDATIONS

For efficiency and ease of understanding, the Recommendations are presented in Point Form.

- A complete re-write of the regulations should be carried out by an expert team capable of working full time on the project, and that project should bring what is now called The Aircraft Rules, 1937 and the Civil Aviation Requirements together into a single document called the Civil Aviation Regulations of India. It is anticipated that the project would take from six to twelve months, and experts would rotate through a series of personnel in each field to develop the material. Only the Project Coordinator would remain from beginning to end. ICAO can provide such a team of experts. The project panel must also include experts from the DGCA and from the Industry.
- The recommendations in the Report on IND/08/813 and the decision to implement them is highly recommended to set in place an independent authority capable of safety oversight of the growing Indian Aviation Industry. This may take several years to accomplish, and an early start on the legislative work is recommended.
- In order to accommodate the short-term recommendations outlined in this report and make full use of existing resources, it is recommended to re-organize the CAA/DGCA, re-align responsibilities within the organization, introduce systemic changes to improve efficiencies and performance, and make several amendments to The Aircraft Act and The Aircraft Rules.
- The Aircraft Act, 1934 should be amended to enact the CAA and/or the Directorate General of Civil Aviation, as well as enable the Civil Aviation Requirements.
- It is recommended that a new senior management position, JDG Regions reporting to the DGCA, Delhi be established in the Headquarters Office, Delhi.
- It is recommended that a new senior management position, JDG Training and Licensing reporting to the DGCA, Delhi be established in the Headquarters Office, Delhi.
- It is recommended that a new Training and Licensing Directorate be brought together and responsible for all licensing issues. A single Training and Licensing Directorate (Pilots, Engineers, Dispatchers, ATC) that includes the Central Examination Organization and Medical, and having a small number of experts from each technical field supported by a larger Administrative group, would be better equipped to completely revamp the license examination process for better productivity and less bureaucracy. All licensing handled by one Directorate.
- It is recommended that DGCA adopt EASA Part 147 as written to be CAR 147, and only one standard, harmonized to the international standard, apply in India in support of the CAR 66 AME License. All other related CARs to be cancelled.
- It is recommended that Certificates of Registration be issued by the Air Transport Directorate;



PROJECT TERMINAL REPORT

- It is recommended to follow international norms and change the name of the Air Operators Permit (AOP) to Air Operators Certificate (AOC).
- It is recommended that the AOP (AOC) be issued and amended by the Flight Standards Directorate, and the Air Transport Directorate confine activities to the issue of the NOC. Flight Standards to be Primary Office of Responsibility for the AOP (AOC);
- It is recommended that Air Safety report directly to the DGCA on safety matters.
- It is recommended that the Regional Offices handle all Operational situations through to completion, with no Operator/Headquarters interface. Headquarters would issue legislation, policy, and procedures to be implemented by the Regions. It is recommended that DGCA Regional and Sub-Regional Inspectors carry out surveillance and audits to ensure that the standards are enforced. DGCA Headquarters will no longer determine the necessary corrective action to remove the system deficiencies, unless a cancellation or suspension of a certificate is involved.
- It is recommended that Scheduled and Non-Scheduled no longer be used to determine DGCA priorities. It is recommended that DGCA organize around the Large Aircraft (>5700kg) and Small Aircraft (<5700kg.) and Rotary Wing Aircraft, with responsibility for commercial and private aircraft operations within each organization. More emphasis should be placed on General Aviation and Rotary Wing.
- It is recommended to have a single core of Large Aircraft Inspectors in the Regional Offices providing safety oversight for commercial and private operators of Transport Category aircraft, and a Small Aircraft Inspectorate in each Region for commercial and private aircraft under 5700 kg. This provides maximum utility of existing resources.
- It is recommended that the DGCA establish and publish in-house policy that there should never be a time when operational pressures justify a reduction in safety standards outside normal practices. This must be established and enforced DGCA policy.
- The DGCA should not copy the ICAO Annexes verbatim.
- All CAR's must have an Index or Table of Contents;
- The CAR numbering system should be changed to a more user friendly format.
- A change in policy to make all work assigned within the DGCA to be to the Office of Primary Responsibility associated with the Certificate or License issued.
- It is recommended that Primary Office of Responsibility be established and prescribed in DGCA policy, and documents outlining responsibilities of the various Directorates be published in-house;



PROJECT TERMINAL REPORT

- There must be a well disciplined control of the wording and formatting of a CAR. A Civil Aviation Requirement is the law. The CAR is not to be used as Advisory Material or use the language of Advisory Material. CAR Section 7, Series H, Part I was issued to introduce an amendment in The Aircraft Rules, 1937. The Rules were amended to cover age 65 pilots, and this CAR introduced the change, which is advisory in nature. This CAR should be deleted and replaced by an Advisory Circular;
- The language of some CARs is language to be used for Advisory Material, not the legal terminology used for Rules. For example, CAR Section 7, Series G, Part I begins with the words: “Many requests are received for issue of Indian pilot’s licenses.....some applicants have faced difficulties...” This is not how aviation legislation should be written.
- DGCA policy on what material goes into the Aircraft Rules and what material goes into the CARs must be established and published internally to DGCA staff immediately.
- It is recommended that the Civil Aviation Requirements undergo a complete detailed review to remove all duplication, conflict, and omission.
- Delete Aircraft Rules 61 and 61A and issue CAR 66, or amend Rule 61 so that it reflects a reference to CAR 66.
- Closely review Aircraft Rules 49 through 60 for any possible deletions or amendments in light of the publication of CAR 21, 145 and CAR - M.
- It is recommended that CAR 66 be issued to bring the Indian legislation into line with international standards.
- CAR 21.172 states that any natural or legal person under whose name an aircraft is registered or will be registered or its representative shall be eligible as an applicant for an airworthiness certificate. It is recommended to delete the words “or will be registered” because it should not be possible to issue a Certificate of Airworthiness without first issuing a formal Certificate of Registration. Regardless of the original intent, this could lead to confusion in years to come. Only a Flight Permit can be issued to an aircraft with provisional Indian registration.
- There are two completely different subjects presently presented together in the Aircraft Rules and the CARs; that is, the application for approval to do business in aviation (Ministry) and the application for an AOP (DGCA). This is very confusing because the written material can jump from one requirement for the NOC over to the requirements for the application for the AOP in the same article. They must be separated in the CARs and the responsibility for each (NOC and AOP) identified within the DGCA Organization. Then there will be two separate references, one for the application for license or approval to do business in aviation, and one for the application and on-going oversight of the Air Operators Permit. These two different responsibilities should be in separate Directorates within the DGCA;



PROJECT TERMINAL REPORT

- New strict Policy and Procedures are necessary to control the development of aviation legislation in India;
- Person(s) very conversant with the development of aviation legislation should be in charge of all on-going work in this area, to ensure uniform language and format in the legislative documents;
- Reduce the number of CARs by combining CARs whenever possible and by removing all duplication of subject matter;
- A single committee working full time on nothing else but cleaning up existing legislation, consisting of one member from each Primary Office of Responsibility be struck and only disbanded when all of the work is completed.
- The DGCA has not adopted the International standard for a Frozen ATPL, which has proven to be safe and efficient in many other countries. It is recommended that the DGCA adopt the Frozen ATPL policy in India.
- It is recommended that all Designated Examiners (Airlines and Training Academy's) be trained and qualified by the DGCA to represent the DGCA, and that they be re-qualified on an annual basis at Designated Examiner Meetings held by the DGCA in Delhi.
- An increase in the sharing of computer data base information between Licensing and the Central Examination Organization would be of great benefit.
- Regarding Cabin Crew, it is recommended to continue the practice of Airline issued Certificates, however, there must be a much greater emphasis on Oversight by the DGCA.
- The DGCA does not license Dispatchers. It is recommended the DGCA issue Dispatcher Licenses every case, even to existing Dispatchers. There must be a much greater emphasis on oversight by the DGCA in this area.
- ICAO defines General Aviation as: "An aircraft operation other than a commercial air transport operation or an aerial work operation." Basically, that means a private aircraft for personal use or a company aircraft used exclusively for the transport of company personnel and goods. The same definition has not been adopted in India. It is recommended that India adopt the ICAO definition of General Aviation.
- ICAO Annex 6 does not define Minimum Reserve Fuel, and therefore the Indian CARs do not mention the subject. The Alternate Fuel and the Final Reserve Fuel must be defined in Indian legislation as being different.



PROJECT TERMINAL REPORT

- First Aid Oxygen, which is pure undiluted oxygen in green portable bottles for medical reasons as well as other types of emergencies, is not mentioned in Annex 6. There are other examples of subjects not covered in the Annex, and it becomes obvious that any State using only Annex 6 as a regulation covering Commercial Air Transport would have serious safety shortfalls.
- Due to the International input to Annex 6, the language used is not common in many countries when describing a standard. Oxygen requirements over 10,000 feet, 13,000 feet, and 25,000 feet are better understood in India than 700hPa, 620hPa, and 376hPa as defined in ICAO Annex 6. The Indian legislation copied the words from the Annex exactly. States must take the time to amend the language to one that is easily understood in that State by the intended user.
- DGCA Safety Oversight and the principle of Primary Office of Responsibility is not straight forward. These issues will have to be worked out during the re-organization process.
- India should study the Canadian example of rules covering small Private aircraft that hold a Type Certificate and those that do not hold a Type Certificate. These rules outline the maintenance requirements and the DGCA Certificates that should apply to these small Private aircraft. The Sport Category aircraft will become more popular in India in the coming years, and preparations must be made for them in the regulations.



PROJECT TERMINAL REPORT

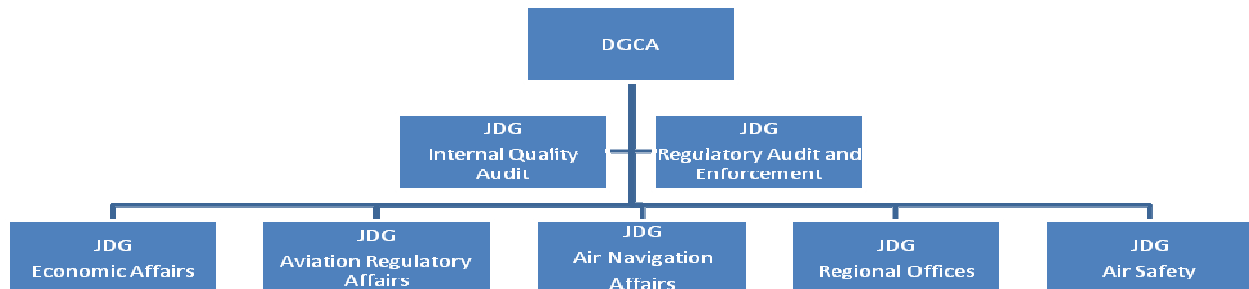
ACTIVITY 1.2 REVIEW THE FUNCTIONS OF THE DGCA DIRECTORATES, REVIEW THE JOB DESCRIPTION OF PERSONNEL, AND RECOMMENDED REVISIONS, AS REQUIRED.

INTRODUCTION

The present DGCA organization is adequate and provides for all existing staff positions and responsibilities. However, this ICAO project will be recommending systemic changes in policy and procedures, and needs a strong vehicle to guide it through. A re-organization is a visible and significant introduction to those changes; therefore, a general re-organization is recommended.

IND/07/816 recommended to the DGCA the need to establish a dichotomy in responsibilities between Headquarters and the Regions. A JDG Regions is recommended for Headquarters reporting to the DGCA. It is also recommended to firmly establish a Regulatory Affairs Directorate including Flight Operations, Airworthiness, Licensing, and Aerodromes/Air Navigation. It is intended to change the old mind-set of responsibility by expertise to a new policy of responsibility determined by certificates issued.

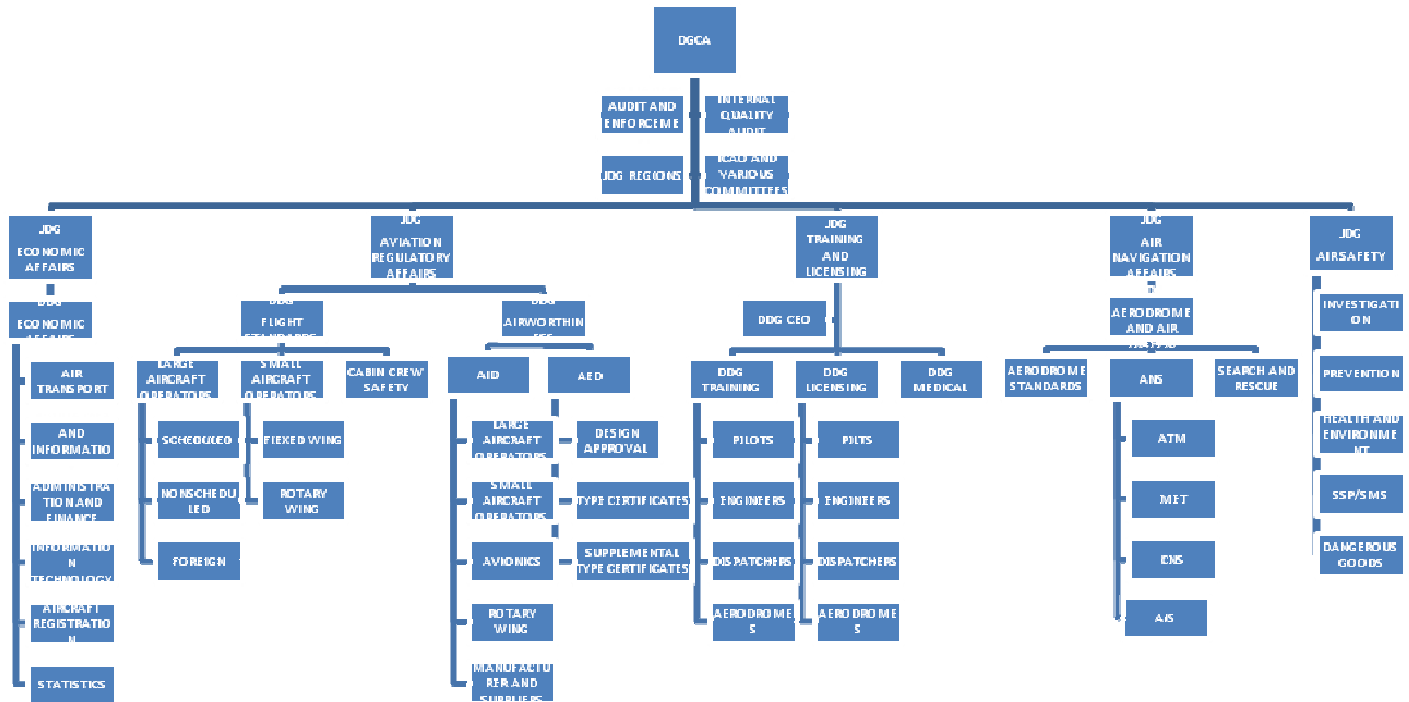
Headquarters Organization





PROJECT TERMINAL REPORT

HEADQUARTERS ORGANIZATION





PROJECT TERMINAL REPORT

It will be necessary to amend job descriptions to reflect the new organization and new responsibilities. The primary office of responsibility for this project should be the HR Department, and those files should end up with a complete volume of job descriptions and responsibilities in one source.

As with other aspects of DGCA documentation, job descriptions are found only after some searching and bringing together the information. The Human Resource Department of the DGCA is not obvious and should have a single source of all necessary information regarding positions in the organization. The HR Department must be more visible within the DGCA.

The individuals presently holding the position should work with the immediate manager to develop complete job descriptions for the new organization.

Certificates and Responsibilities

The Air Operator Permit should move from Air Transport to Flight Standards and the Certificate of Registration should be moved from Airworthiness to Air Transport to accommodate the systemic changes being recommended.

The approval to purchase an aircraft in India is coordinated by Air Transport and the Ministry of Civil Aviation. Since all of the preparatory work in India is completed by Air Transport Directorate, Airworthiness should not be responsible for the Certificate of Registration. The Register is better suited for the Air Transport Directorate.

The Air Operator Permit is issued by Air Transport Directorate; however, from the date of issuance of the No Objection Certificate, all matters related to the issue and amendment of the AOP should be the responsibility of the Flight Standards Directorate. The only exception to this would be a change in Board Members or ownership of the AOP certificate. This change would return to the Air Transport Directorate because that becomes a matter related to the initial issue of the certificate. These are Economic and Political issues not related to Flight Operations.

The Air Safety Directorate was established for a reason of priority at the time and had specific responsibilities. Since that time, the directorate has spread out into surveillance and audit responsibilities, cabin crew, and dangerous goods. These should now be the Flight Standards Directorate responsibility, and Air Safety can focus on Investigations, Prevention, Environment, and the modern challenges of SSP and SMS.

DGCA Headquarters should be responsible for policy and legislation. The Region should be responsible to implement that policy and legislation. There is no mix or grey area. This separation is considered important and necessary in the long term.

From the present Delhi Flight Standards Directorate, the DGCA could assign 2 or 3 CAI staff to Headquarters responsibilities and the rest of the existing CAI staff in New Delhi considered Regional staff, even if they continue to be housed in the HQ buildings in the short term.



PROJECT TERMINAL REPORT

Job Descriptions and Personnel

Interviews were conducted in every directorate. Existing staff are experienced in operational matters, however, the ability of staff to understand the basics of their legal responsibilities is affected by the training program. The present job descriptions for every position in the existing organization and responsibilities of those positions were not found. The HR Department needs to be developed.

Review of Personnel and Positions

Airworthiness

Mr. R.P. Sahi, JDG

Mr. Sahi is considered one of the better senior staff members, based on:

- Well experienced;
- Good understanding of responsibilities;
- Well versed in civil legislation and recent DGCA experience;
- Good attitude and balanced judgment.

Mr. Sahi has retired from his JDG position with the DGCA, but has been retained under contract for several projects. The proposed re-organization would be better accomplished with his assistance and understanding of existing conditions; however, Mr. Sahi tends to be obstructed on occasion from taking what he knows to be the correct course due to previous experience and disappointment in support. The new way forward will require discipline, and direct interface against the old ways.

Although there is one Director and two DD's available to replace Mr. Sahi, none are considered equal to him. Mr. Das has been appointed JDG and will develop a more amenable attitude about change as he matures in the position. Change management and out-of-the-box thinking is required in the JDG position.

Flight Standards (Flight Operations)

Captain Samant (CCAI) and Captain Kaphalia (Acting CCAI)

The Flight Standards CAI's believe the ICAO SARPS provide adequate standards, and they do not seem to be as well versed in the basics of civil aviation legislation as one would expect at this senior level of management. They have a tendency to prefer International Standards that have been changed to suit existing Indian airline operational environment, rather than change to the new regulatory methods.

Some of the CAI's have had formally structured Flight Operations Inspector training, and have had the occasional course provided by COSCAP or others; but the lessons were not well learned. The majority of the training has been done by senior or retired DGCA Inspectors who have carried out their DGCA duties the same way for many years. A fresh perspective and more discipline in training from an International CAA would be of great benefit to the training profile.



PROJECT TERMINAL REPORT

NOTE: Following the recent audit training provided by this Project IND/07/816, it was stated by several attendees that they had never had such structured dedicated training. It may be the lesson was not learned by the CAI's because the teacher did not teach. When instructing new CAI's the training must begin with the very basics of legislation, and not start from a point of assumed knowledge. The training will be lost, along with the student.

The Inspectorate is primarily manned by Airline line flying pilots, who have a predisposition to seeing problems from an operational perspective instead of a legislative perspective. Therefore, a strong regulatory enforcement program is not evident (it does not exist).

Captains Samant:

- Experienced line pilots;
- A good attitude and willing to work with others;
- Willing to learn new legal perspectives, but similar attitude regarding Airline Operations;
- Often uses line pilot experience and perspective to resolve problems;
- Have to work with line pilots on secondment from the very airlines they have oversight responsibility for, and the CAI's are inexperienced in the legal perspective.

Captain Samant (CCAI) once commented that he reviews European and American legislation, but does not adopt rules that do not fit the Indian airline operation. When Captain Samant retires, he should be replaced by someone who has a pure regulatory perspective, and has graduated from a formal Flight Operations Inspector Course such as the FAA or British CAA courses. The candidate should have management experience in a Regulatory Flight Operations Department. If not having this experience, the developmental training must include some on-the-job contact training at a large international CAA.

Flight Standards (Flight Operations) will be the central office for the Air Operators Permit (AOP), and all audits, enforcement, and other approvals will pass through this office. It must have a senior manager with a solid regulatory perspective and not an operational perspective. An ATPL with commercial jet flying experience will be a requirement for the CCAI, however, the ATPL does not have to be current or valid.

There is no one in the present organization capable of managing from a pure regulatory perspective in the proposed new Flight Standards Directorate.

Use of Indian Commercial Pilots in Flight Standards Directorate

It is understood that a large number of graduate Commercial Pilots (CPL, ME, IR) are waiting at home for a call from the Airlines after graduating from approved schools and obtaining licenses, some waiting for over a year. These qualified young pilots would be perfect for all work in Flight Standards except the actual line checks or simulator checks of Transport Category aircraft, and would not have any conflict of interest due to payments from the Airlines. These pilots could be given a comprehensive indoctrination into the profession of Civil Aviation Inspector and provide the DGCA with a pure source of safety oversight.



PROJECT TERMINAL REPORT

It is recommended that the DGCA intake as many CAI graduate Commercial Pilots for HQ and Regional Offices as will take the salary offered by the DGCA as a direct hire. They can handle all manual amendments, certificate renewals and all manner of administrative work for Large and Small aircraft. They can handle all Small Aircraft checks and operations. Only the actual line check or simulator check on Transport Category aircraft must be done by a DGCA Examiner or Designated Examiner. For these line checks and simulator checks a small number of dedicated **contracted** CAI's would be adequate in Regional Offices (none required for HQ). Remove all seconded CAI pilots. Line and simulator checks do not have to be done by type rated DGCA Inspectors. Type rating on a similar aircraft type is adequate to check SOPs and Simulator sessions. Retired or Medical Unfit pilots would be best contracted pilots.

(Some older pilots will disagree, but other International Authorities have proven the above case.)

Air Safety

Mr. Bir Singh Rai, Director

Mr. R.S Passi, Director

Both Directors are Aeronautical Engineers. Although a primary activity is identified as incident investigation and accident prevention along with follow up on accident investigation recommendations, the Air Safety Directorate is becoming more involved in the flight operations aspects of the Safety Oversight Program, for which they have no training or experience. Although safety is still a role in their daily activity, the minor incident investigations have been delegated to the Airlines, and major investigations taken over by the Court of Inquiry and Committees appointed by the Minister of Civil Aviation.

Findings

Air Safety has become interested in doing the annual Airline Surveillance against the CARs and the company AOP manuals. Air Safety would propose that the Team Leader be Air Safety, with Flight Operations and Airworthiness backup. Neither Air Safety Director interviewed has Flight Operations or Airworthiness experience. AOP Audits should be done by the Flight Standards Directorate, not Air Safety.

It would be better to confine the role of Air Safety Directorate exclusively to the field of safety, instead of operational oversight. The recent requirement for SMS and SSP are examples of safety work that can be done by this Directorate. Therefore, the Directorate should be responsible for Investigation, Prevention, and SMS/SSP.

The Directors did not understand the concept of Prevention, and the responsibilities of the DGCA to report to ICAO and the Continuous Airworthiness programs of the Manufacturers. For every investigation into an Incident or Accident there will be a Prevention action to follow to ensure it does not happen again, not only in India but in the worldwide Industry.

The Air Safety Directorate should reduce the reliance on Aeronautical Engineers qualifications for positions. The Directorate should have staff qualified in Safety programs in Flight Operations, Airworthiness, Air Navigation, and Licensing.



PROJECT TERMINAL REPORT

Flight Standards (not Air Safety) will play a large primary role in aviation safety oversight as the central office for the AOP. All surveillance, audits, enforcement, and approvals will be Standards responsibility. Everything must now be brought together under one roof and under one JDG and one DDG.

Flight Training Standards Directorate

Captain Mann is a contracted Director of Flight Training and has two Inspectors reporting to him, along with Administrative staff. Only Captain Mann is authorized to fly with the CFI and Students to check competence. Compared to the number of Flying Institutes to be audited by this Directorate, the staffing levels and qualifications need attention. Captain Mann has only a few months left in his contract, and there is no notice of continuance after that date.

Since the Regional Offices and HQ will be dividing responsibilities between Large Aircraft and Small Aircraft, it is obvious that everyone can benefit from the number of CPL/ME/IR graduate pilots presently without employment in every Region. These CPL pilots (after extensive regulatory training) could take all responsibility for small aircraft operations, including the Flying Institutes.

Captain Mann is qualified to carry out his duties as Director Flight Training, but he will need training in basic legislation and regulatory responsibilities if he continues in the position. The Director of Flight Training should be permanent staff and not contract staff. There should be more CAI's in DFT who are authorized to fly with students to check competence.

Surprisingly, the Shri H. S. Khola Report did not recommend additional CAI's in this department, when nothing could be more important than the abinitio training of a pilot. IND/07/816 completely disagrees with the Khola assessment of the Flight Training Directorate. The department staffing requirement should be re-considered from the perspective of workload and man-days required to complete the annual program. This will result in a significant increase in manpower, which should be considered available work for qualified Indian Commercial Pilots presently sitting at home waiting for employment.

Licensing

Mr. Arvind Sardana, Director

Unfortunately, this group confines their activities to the initial issue of Pilot Licenses only. The renewal of the Pilot License is done in the Regional Offices. After receiving information from the CEO that all required examinations have been passed, the initial issue is done in New Delhi.

The work being done in New Delhi is for the most part clerical. If any information is questionable, the Director will ask Flight Operations for assistance. The Director has no experience in Airworthiness Licensing.

The new organization proposes that all Personnel Licensing be done under this Directorate, including the CEO examinations. It is also proposed that ab-initio training come under this Directorate, meaning the approval of syllabus and examinations at Flying Institutes and AME Schools.



PROJECT TERMINAL REPORT

The senior manager for Licensing and Training must be someone competent in all Licensing matters (Operations, Airworthiness, and Aerodromes) and capable of making meaningful decisions about training schools and training content.

There is no one in the present organization capable of managing the proposed new Licensing and Training Organization.

Air Transport

Mr. Sharma, Director

Mr. Ved Prakash, Dy Director

Mr. Savithri, Director – Not interviewed

Interviewed the Dy Director Prakash. The DD seems confident and qualified, however, the Directorate is under-staffed and he is pressed to accommodate the flow of work.

The proposed organization will move the Air Operator Permit responsibilities from his workload to Flight Standards, and new staff will be transferred in from Airworthiness to take up the new task of the Certificate of Registration. With a new emphasis on this Directorate the staffing levels must be protected, even if contract workers have to be brought in for a year or so.

Comments

- The DGCA is understaffed for the volume of work that should be done;
- The DGCA does not benefit from modern IT technology the way it easily could;
- The Government staffing bureaucracy has led to seconded workers who have partial interest in the goals and objectives of the DGCA;
- Everyone who was interviewed was friendly and cooperative, wanting to assist in making improvements in resources and productivity;
- Only people working in Headquarters were easily available for interview and discussions, so this paper reflects HQ rather than the Regional organizations;

Recommendations for Activity 1.2

- The Recommendations of ICAO IND/08/813 have been presented to the Government and a decision to implement the recommendations for an independent CAA has been made. The independent CAA will make substantial differences in resourcing, training, and remuneration of employees and it is recommended that all efforts be made to make this change as quickly as possible;



PROJECT TERMINAL REPORT

- Staff should stop justifying the old methods and agree to adopt the more modern philosophies of aviation regulatory oversight;
- In order to accommodate the short-term recommendations outlined in this report and make full use of existing resources, it is recommended to re-organize the CAA, re-align responsibilities within the organization, introduce systemic changes to improve efficiencies and performance, and make several amendments to The Aircraft Act and The Aircraft Rules.
- A change in policy to make all work assigned within the DGCA to be associated with the Certificate, License, or Approved Manual, rather than by the Expertise of the person assigned to do the work.
- It is recommended that Primary Office of Responsibility be established and prescribed in DGCA policy, and documents outlining responsibilities of the various Directorates be published in-house;
- It is recommended that a new senior management position, JDG Regions reporting to the DGCA, Delhi be established and be independent of the Headquarters Office, Delhi.
- It is recommended that a new Training and Licensing Directorate be brought together and responsible for all licensing issues. A single Training and Licensing Directorate (Pilots, Engineers, Dispatchers) that includes the Central Examination Organization and Medical, and
- having a small number of experts from each technical field supported by a larger Administrative group, would be better equipped to completely revamp the license examination process for better productivity and less bureaucracy. All licensing handled by one Directorate.
- It is recommended that a new senior management position, JDG Training and Licensing reporting to the DGCA, Delhi be established in the Headquarters Office, Delhi.
- It is recommended that Certificates of Registration be issued by the Air Transport Directorate;
- It is recommended that the AOP be passed to the Flight Standards Directorate as soon as it is issued by Air Transport Directorate, and FSD to be Primary Office of Responsibility for the AOP;
- It is recommended that Internal Quality Audit Division report directly to the DGCA on internal matters.
- It is recommended that the Regional Offices handle all situations through to completion, with no activity from Headquarters except the issuance of legislation, policy and procedures to be implemented by the Regions. It is recommended that DGCA Regional and sub-regional officers carry out surveillance and audits to ensure that the standards laid down are enforced. DGCA Headquarters will no longer take the necessary corrective action to remove the system deficiencies, unless a cancellation or suspension of a certificate is involved.



PROJECT TERMINAL REPORT

- Staff should change the mind-set that flight operations to certain geographical areas must go on, regardless of safety issues.
- Senior management should be on-board for the drive for change in the policies and procedures necessary to get away from the old view of the industry; for example, do away with Scheduled and Non-Scheduled terminology and replace it with the more familiar Large Aircraft and Small Aircraft operational categories;
- Do away with Seconded employees as quickly as possible;
- Bring the basics of regulatory work to the forefront, and stop any and all personal opinion based on personal experience;
- The DGCA should follow International Standards that are found necessary in the rest of the worldwide industry, and not be driven by the desires of the local Airlines;
- If the new organization is accepted and implemented, formal structured international training of permanent staff who are qualified for the position they are applying for would provide a major improvement in the DGCA organization;
- The staff in the present organization cannot bring about the changes required, and outside assistance with a modern, progressive perspective will be necessary for at least 24 months.
- The recommendations in the Report on IND/08/813 and the decision to implement them is highly recommended to set in place an independent authority capable of safety oversight of the growing Indian Aviation Industry. The establishment of an independent civil aviation authority may take several years to accomplish, and an early start on the legislative work should begin immediately.
- It is recommended that the Human Resource Department of the DGCA be more visible with a comprehensive Human Resource Manual held in every Directorate office.
- The HR Department must hold every Job Description for every position in the Regions and in Headquarters.
- The DGCA should introduce an “Allowance” to increase the CAI remuneration to an acceptable level closer to the Indian industry standards.

Flight Standards Recommendations

- The DGCA should find the means to increase the number of permanent and contracted staff, and the remove the seconded staff. A way must be found to have all remuneration for Flight



PROJECT TERMINAL REPORT

Standards Inspectors to come from the DGCA. They presently receive most of their remuneration from the Airlines, and they presently spend more time flying for the Airline than working for the DGCA. The conflict of interest is obvious, but also the perspective of a true regulatory agent is missing and supplanted by the perspective of the Operators.

- Formal training programs in the basics of regulatory work, with an emphasis on imposing the regulations to ensure an adequate level of safety. Foreign CAA training programs are recommended.
- Enforcement policy must be emphasized and non-compliance with the regulations penalized no matter what effect it has on operations.
- Flight Standards Directorate should be responsible for all matters related to the AOP, except a change in Board Members or a change in Ownership. This would mean all flight operations matters presently handled by Air Safety, Air Transport, and Airworthiness will be brought under the control of Flight Standards, along with Airlines Training Programs.
- Flight Standards must have an adequate number of POI's and Administrative staff to handle the anticipated growth in the Indian Aviation Industry at 13% annually.
- DGCA Safety Oversight and the principle of Primary Office of Responsibility is not straight forward. These issues will have to be worked out during the re-organization process.



PROJECT TERMINAL REPORT

ACTIVITY 1.3 ASSESS THE ABILITY OF EXISTING DGCA FLIGHT SAFETY INSPECTORS TO PERFORM FULLY THE REQUIRED INSPECTIONS AND APPROVALS OF AIR OPERATORS, MROS AND PROVIDE RECOMMENDATIONS ON THE NUMBERS AND TYPES OF ADDITIONAL PERSONNEL NEEDED AND HOW URGENTLY THEY ARE REQUIRED.

Introduction

The DGCA has evolved over the past twenty years into a very important part of aviation safety in India. Staff have been brought in from the Industry to cover the operational and regulatory responsibilities as they evolved, beginning with Air Navigation, Aerodromes, and Airworthiness. When AAI took operational responsibility for Airports and ATM operations, some ATC staff remained with the Airworthiness staff in DGCA to handle the regulatory workload.

Today, most of the training for the new regulatory staff is on the job training, and lectures from staff retired from the DGCA. Although there has been some foreign training, it is obvious that the basics of civil aviation legislation has not been taught, or if taught, have not been learned. There is still a heavy emphasis on the perspective of the operator, and that will affect every decision made in the development of rules and the implementation of the oversight program. This operational perspective intensified recently with the seconded Flight Operations pilots from the National Air Carriers to act as Principle Operations Inspectors.

Findings

This review included office visits, interviews, and a review of legislation and previous reports. Key points to be considered by the DGCA are:

- The manpower levels of the Kaw Committee Report are agreed by this review; however the distribution of manpower should be reviewed and industry growth will change the requirement. There should be a re-alignment of Certificate responsibilities in Headquarters, and the Regional Office organization completely overhauled to provide the Industry with day-to-day service and oversight. In summary, Headquarters should be responsible for policy and legislation, and Regional Offices are responsible for Implementation of policy and legislation.
- The DGCA training program has not achieved a level of competence required for senior civil aviation authority managers, primarily in basic legislation and certification. Present procedures allow the introduction of personal opinion based on personal operating experience, rather than following international aviation legal standards. The cut-and-paste of ICAO SARPS in the development of CARs does not restrict this common practice.



PROJECT TERMINAL REPORT

- The present fragmented organization causes confusion in responsibility and therefore DGCA staff are not clear of their role within the implementation program. An example of this is the fragmentation of Flight Operations responsibilities. AOP issues are presently the responsibility of the Flight Operations Inspectorate, Air Safety, Air Transport, Airworthiness, and to some degree the Training Directorate.
- There is an inadequate number of Officers or Inspectors at the working level and too many Directors and DDGs. This top heavy organization is the result of internal requirements, but must be corrected in the future if any control of the industry at Regional level is possible. The greatest volume of work in the interface with industry should be at the Regional Officer/Inspector level; namely, the Principal Operations Inspector (POI) and the Principal Airworthiness Inspector (PAI). The POI and PAI must focus on the legal perspective, rather than the operational perspective.
- **Enforcement of the regulations is weak.** This is a result of Inspectors taking an Operator's perspective into consideration and being concerned about what effect the enforcement action will have on operations. It is not understood by the Inspectors that a short period of firm enforcement will encourage compliance with the regulations and greatly reduce findings.

Recommendations for Activity 1.3

- The number of Aeronautical Engineers in the Air Safety Directorate is high. The experience level in Operational matters within the Directorate is such that they must always ask for the assistance of experts from other Directorates. This can never result in a good safety program. There must be less emphasis on Aeronautical Engineers outside the AED in the Airworthiness Directorate.
- Administration, IT, and Personnel Manuals are a very important part of any organization. It is considered important for every organization to have a strong, functional Human Resource Department, and the DGCA is no exception. These organizations and services should be more visible within the DGCA and Administration and Personnel manuals held by senior managers.
- There should be a JDG Regional Offices to be responsible for the newly established Regional Organization, reporting only to the DGCA in Headquarters.
- The DGCA must develop an Enforcement Division reporting directly to the JDG Regional;
- Daily interface with the industry (AOPs and MROs) should be with the Regional Office with no interference from personnel in Headquarters other than the JDG Regions.
- Duplication of work between HQ and Region; e.g., the review of files, must be eliminated.



PROJECT TERMINAL REPORT

APPENDIX A and B

A more detailed and specific breakdown of Activity 1.3 and Recommendations are available in APPENDIX A and B to this report prepared by the FOE and the AWE and will not be repeated herein. It is understood that the DGCA requires more human resource, requires training in many basic areas of interest, and needs to change in procedures with modern technology in support to streamline the flow of work. All of these will become much more important as the Industry grows at a rate of 13% annually, and the Indian government and public hold the DGCA accountable for the oversight of flight safety in India.

ACTIVITY 1.4 PROVISION OF SHORT PRACTICAL TRAINING COURSES AS PRACTICAL WITHIN THE LIMITED TIMEFRAME OF THE PROJECT TO THE FRESH DIRECT RECRUITS IN THE SLIGHT SAFETY OVERSIGHT WORKFORCE OF DGCA.

See Appendix A and Appendix B as submitted by the FOE and the AWE.

ACTIVITY 1.5 PROVISION OF ON THE JOB TRAINING TO DGCA INSPECTORS THROUGH PROVISION OF ADVISORY ASSISTANCE IN FLIGHT SAFETY OVERSIGHT FUNCTIONS.

See Appendix A and Appendix B as submitted by the FOE and the AWE.



PROJECT TERMINAL REPORT

3. OUTPUTS PRODUCED AND OBJECTIVES ACHIEVED

3.1 In each meeting with the Director General Civil Aviation, the objectives of the project were discussed and the respective compliance with the relevant ICAO Annexes was ascertained. All field trips were documented in individual reports, including the problems detected and related findings and recommendations were submitted to the DGCA.

3.1.1 The service provided by IND/07/816 was evaluated with all parties concerned and, where necessary, suggestions and recommendations were made to upgrade, update or expand these services, particularly as they relate to compliance with ICAO and safety requirements. The implementation of the suggestions and recommendations made by IND/07/816 should lead to enhancement of the safety oversight program and greater accuracy of information exchanged.

3.2 Legal Issues

3.2.1 Legislation – The Civil Aviation Requirements (CAR) are very fragmented and it takes the reader some time to derive all of the requirements for any one specific issue. The search for information will also go into the Aviation Circulars, which in some cases are wrongly used as mandatory legal documents. It is recommended that ICAO agree a Project with the DGCA to have the legislation completely re-written to modern international standards meeting or exceeding ICAO Annex requirements.

3.2.2 The DGCA senior staff have a general knowledge of legal requirements, but are lacking skills in the basic legislation and the intent of the law. There is a tendency to interpret the rules from the Operator's perspective. A lecture was presented by IND/07/816 to the senior staff from the Delhi Regional Office and Headquarters on Basic Aviation Legislation, and comments from attendees indicate that this was a good introduction to such a formal approach to the subject.

3.2.3 There is a need to have better collaboration, coordination and a clear definition of responsibilities and tasks in the DGCA and Airports Authority of India. This needs to be done through formal agreements between the DGCA on one hand and the AAI on the other. There are too many uncertified airports being used for commercial service in India, and several do not meet ICAO Standards. There is no one auditing the body of AAI to ensure the provider meets ICAO Standards. The DGCA focus is surveillance at the airport itself, and not the AAI organization itself. The DGCA Aerodrome Directorate needs immediate resourcing to undertake the work so long neglected.



PROJECT TERMINAL REPORT

3.3 Safety Oversight

3.3.1 Outside assistance to the DGCA in this regard will continue to be needed. The present management cannot successfully implement all of the recommendations of this Project. At least three ICAO OPAS Experts assigned as JDG Counterparts will be required to push the changes through the tipping point, whereby going back to the old way of doing business will not be possible.

3.3.2 The implementation of the recommendations from this Project will require much effort and time. The implementation of the recommendations will enhance the Safety Oversight capability, but also prepare for safety audits conducted by ICAO USOAP and correct deficiencies identified in the audits.

3.4 Services

3.4.1 While DGCA Inspectors are generally qualified and of similar standards, the number and capability of Inspectors as well as the IT tools they have need priority attention from the Central Government.

3.4.2 Problems in the filing of data in the ICAO databases have been encountered in India for a variety of causes, but mostly due to:

- a) Failure to carry out the required;
- b) Lack of communications between the State and ICAO;
- c) Data collection and input errors.

3.5 Computers and Equipment

3.5.1 A major problem faced in this regard by the DGCA is the significant amount of hard copy (paper) files they have. At present, the DGCA use systems from a variety of sources and of different technologies, age, reliability and complexity. This is affecting efforts negatively and cannot be overcome except by modernization of equipment and by having communication systems that are more compatible, efficient and reliable. A large reduction in the number of old files kept by the DGCA can be achieved by following existing rules on the number of years the records are required to be held, and transferring all necessary files to computerized files. The fact that old non-essential tasks are still being done is augmented by the fact that paper files circulate through the Directorate and into Archives at a never ending increasing pace. Stop doing unnecessary tasks and develop a fully computerized filing system to streamline the work flows.



PROJECT TERMINAL REPORT

3.6 Quality Management

The DGCA is intending to set up an Internal Quality Audit division, which is similar to a Quality Management System (QMS). The DGCA is aware of the need to develop a QMS and have plans to investigate the requirements for its development. ICAO training for existing staff in the Air Safety Directorate in this area is required.

3.7 Training

3.7.1 The training standards were generally good in Airworthiness Directorate, but lacking in all other Directorates. The training received was composed of a mix of classroom courses and on-the-job training, but this was more often provided by retired DGCA staff, who continue the culture established by them. The short time allocated for the Project did not allow time for training of personnel apart from basic training in Regulatory Audits and Enforcement. However, the explanations provided and the discussions conducted enabled the transfer of information and updating of knowledge in the field of aviation safety oversight.

3.8 Reorganization

3.8.1 IND/07/816 recommended a reorganization of the DGCA that will provide a more efficient and productive workflow. Also recommended, policy and procedures for DGCA work to be handled by the Office of Primary Responsibility; that is, the office issuing the certificate or license involved. Historically, the Directorates worked with very little communication between the divisions; that is, pilots worked on pilot issues and engineers worked on engineering issues with little communication or input. Working under the certificate or license force all divisions to play a role in the development of legislation, policy, and procedures.

3.9 Various other achievements

3.9.1 Two weeks of training (Delhi/Mumbai) was provided to introduce the concepts of Regulatory Audits. A Manual of Regulatory Audits (MRA) was produced and presented to the DGCA during the first week of training conducted by IND/07/816 to DGCA inspectorate staff.

3.9.2 Two weeks of training was provided to introduce the concepts of Enforcement Policy;

3.9.3 Following a review of CARs against the ICAO Annexes 1, 6, and 8 a program of review and amendment of existing CARs was initiated by the DGCA in line with Project recommendations;



PROJECT TERMINAL REPORT

3.9.4 On the job training was provided during several line checks that were carried out to determine the efficiency of the Flight Operations Inspectors (CAI);

3.9.5 Flight Schools and AME schools were visited to determine the condition of the abinitio training being carried out in India, which included on the job training for DGCA Inspectors;

3.9.6 Manuals were presented to DGCA outlining the required training and certification of DGCA Designated Examiners and Ground Handling Agents.

4. FINDINGS AND LESSONS LEARNED

4.1 *Problem areas covered by this project include:*

- a) The policy of promotion based entirely on seniority rather than professional competence eventually leads to senior management who are not qualified to fill the position, which has a direct effect on aviation safety;
- b) The lack of training and preparation of Civil Aviation Inspectors (CAI) to a professional standard, mainly due to the use of seconded and contract inspectors who are put in the field immediately with a minimum of training;
- c) The lack of defined policy and procedures in the development of subordinate legislation; i.e., the Civil Aviation Requirements (CAR);
- d) The general inefficiencies that normally result from an organization that handles work in accordance with the profession involved rather than the Certificate or License involved, which results in little communication between directorates.
- e) The lack of an effective regulatory audit program;
- f) The lack of an effective enforcement program;
- g) Flight Operations Inspectors and Designated Examiners of the DGCA do not understand the relationship between the Examiners, Instructors, and Check Pilots and the Airline and the DGCA. The Examiners believed they were working and reporting to the Airline, rather than to the DGCA. Training and approvals must be undertaken in a new program, as prepared by this Project.

5. RECOMMENDATIONS

5.1 The Recommendations of ICAO IND/08/813 have been presented to the Government and a decision to implement the recommendations for an independent CAA has been made. The re-organization proposed in this paper will not interfere with the on-going work in the development of the new CAA, and should fit in completely with the requirements of that new independent organization.



PROJECT TERMINAL REPORT

5.2 It is strongly recommended that DGCA senior management take this opportunity in time to correct much of the existing legislation and bring Indian standards in line with international standards, and clean up many errors, omissions, and duplication between the various civil aviation legislative documents. If this work is not done at this time, with the anticipated growth of aviation in India, it may be that legislation will get too far behind the industry, and it will cost the airlines and the CAA more to catch up later, if ever.

5.3 More importantly, several key personnel in the DGCA will be leaving their posts in the near future. Nothing will impact the implementation of short-term changes and improvements than the loss of these staff. If changes are going to be made with existing resources, then the work must begin immediately.

5.4 The CARs have become complicated and therefore burdensome to the Industry. It is normal for new Regulations to take from four to six months for review and assessment before being published as formal legislation, but today a CAR can be put out in 30 days after very little review and comment. This leads to having duplicate CARs on the same subject, conflicting information, and omissions due to the lack of thorough review. Formal legislation should be more carefully considered.

5.5 It is our opinion that the government and the industry are ready at this time for fundamental changes in the way regulatory safety oversight is conducted. There must be a commitment to take advantage of that willingness to make essential changes.

5.6 The practice of seconded and contracted CAI's must be abandoned and as many permanent staff with no outside obligations of commitments be hired and trained to conduct safety oversight; for example, CPL graduate pilots.

5.7 As the DGCA moves to an independent authority, the practise of promotion by seniority must be abolished and replaced with a system of competition for positions available. This will ensure that qualified staff are promoted to senior and important positions in the Regulatory Authority.

Comment

A great deal of good work is being done under the Director General on a daily basis to make improvements in the delivery of the safety oversight program. The Activity reports herein are the result of a critical analysis, and do not reflect the fact that the Directorate is keeping up with the majority of work demanded by the Industry. This comment is made to bring a more balanced perspective to the findings and recommendations.



PROJECT TERMINAL REPORT

Boxes

A talk to a group of senior DGCA managers by A. Bryson on the Basics of Legislation

In the field of Aviation Regulation, it is important to learn the basics of regulatory work and always apply the Rules from that perspective. Behind every activity there must be a Rule or a Standard to be interpreted or implemented. Failure to know and understand the basics leads to gaps in implementation, or worse, personal interpretation of the rules, which can undermine the respect the industry has for the DGCA.

We can look at this concept from two perspectives; namely, the aircraft and the pilot. First, we will look at the aircraft.

To design a new aircraft, the designer has in front of him a code of airworthiness; for example FAA FAR Part 25. He also has standards, such as MIL Specs and ANS Standards, as well as TSO Standards. There are many approved and tested designs for wings and airfoils, and specifications for metal and composites.

If he is qualified to do so, the designer may introduce a completely new design and have it put through a compliance program against one of the standards or codes.

All of the drawings and all of the test data, manuals, reports from all of the test flights and any other required information are put in a large box, and on top of that box is a certificate: A Type Certificate. The manuals in the box include the AFM, the Maintenance Manuals, the MMEL, and the Maintenance Review Board (MRB) Report among others.

When it is shown that the aircraft presented to the DGCA has all of the component parts described in the Type Certificate box, and when it is shown that all of the component parts are serviceable, the aircraft is put into a box and on top of that box is a certificate: A Certificate of Airworthiness.

In other words, only an aircraft that meets all conditions of the Type Certificate can get a Certificate of Airworthiness.

Only an aircraft with a 'valid' Certificate of Airworthiness can be used in Commercial Air Transport. This is an ICAO Convention. If any component part required by the Type Certificate becomes unserviceable, the Certificate of Airworthiness is 'out of force' because the part does not meet the Type Certificate. This aircraft may be very safe to fly (with a Flight Permit from the DGCA) but it cannot be used in commercial service without a valid Certificate of Airworthiness because of an ICAO Convention.

When we talk about pilots, engineers, cabin crew, dispatcher, etc. we can talk in the same scenario of boxes, except on top of the box is a License instead of a Certificate. The license box has medicals, proficiency, currency, recurrent training, and other data that must be 'valid' or the License is 'out of force'. If a medical is out of date, the person does not have a pilot license. By correcting the item that is out of date, the license becomes 'valid' once again.



PROJECT TERMINAL REPORT

If you are asked if a pilot can make one flight with his medical out of date and get it fixed tomorrow at the doctor, you see him as a person without a pilot license, not someone with a medical out of date. There is a big difference now in the question. Can we let someone without a pilot license fly a commercial aircraft in India?

Civil Aviation Regulations are constructed in such a way that an Inspector can use the concept of boxes with the regulations as well. Start with the basic subject. Determine the certificate or license you are working with. Go to the regulations and standards that specifically discuss that subject. The regulation should be specifically written to address that subject and not just mentioned as a part of a larger requirement.

For example, you can find references to pilot licenses and training requirements in the CAR covering Air Operator Permits, but that is not the box you should be looking in as the guiding light on license requirements for the pilots in the AOP. You should be in the Licensing Regulation (FCL) box, and if the

AOP manual submitted by the Operator states something different from the Licensing Regulation then it must be amended. If a CAR on AOPs has been published that says something different from the Licensing Regulation, then it should be amended to reflect the licensing standard. There is only one box for each license. Go back to it; stick to it. Do not be carried away with references to the subject in other boxes.

Question: An operator has submitted a manual amendment that says, “After take-off, delete the requirement for 250 kts or less below 10,000 ft after consultation with ATC.” What box am I in with this amendment? (AOP) What is the subject? (SOP’s) What is the specific issue? (Increase speed above standard during departure.) What is the primary box for that subject?

Where is the DGCA Standard for departure speeds? (Indian AIP) The Indian AIP, ENR 1 – General Rules and Procedures, ENR 1.1 – General Rules, 2.5.1 that states all aircraft arriving or departing must maintain speeds less than 250 kts below 10,000 ft.

However, 2.5.4 states that ATC can declare a general “No Speed Restriction” to all operators when they feel the traffic is such it does not affect safety.

Should an Operator’s DGCA approved manual state that a pilot can delete something that is covered by a DGCA legal requirement? Also, the ATC clearance in 2.5.4 seems to be for all operators in the area when ATC believes traffic can handle more speed; it is not just for one aircraft on departure. This is the moment that ‘interpretation of the law’ comes into play for the Regulatory Authority.

In my opinion, no DGCA approved manual should state that a legal rule can be deleted by any means.

This amendment request should be rejected based on the principle that no SOP should state that a rule can be deleted, for any reason. In your response you should:

- quote the AIP articles you are using as a standard;



PROJECT TERMINAL REPORT

- challenge that article 2.5.4 is a general clearance for all traffic and not just one aircraft (interpretation of the law);
- question if all other countries operated to have different or similar rules.

Do you make your response to this Operator based on your own personal experience? No.

The questions that were asked to come to this conclusion were questions that were asking, **“What box should I be looking in?”** What is the BASIC question, and what is the PRIMARY standard? In this case it was the clearance (certificate) issued by Air Transport Directorate to operate in Indian airspace in accordance with the AIP.

Even though this Operations Manual amendment comes under the AOP, **the question did not belong in the AOP box.** You will not find the answer in the AOP box. **It is in the Indian Airspace box.** There are lots of boxes; we just have to learn them.

Start with What Certificate is On Top, and then build the contents of that box. No one subject should be in two boxes. The Flight Standards AOP box needs pilot licenses, so it has licenses in it; but the pilot licensing box has all the contents of that license in the Training and Licensing Directorate.

DIRECTORATE GENERAL CIVIL AVIATION

MANAGING CHANGES UTILIZING EXISTING
RESOURCES TO IMPROVE EFFICIENCY AND
PRODUCTIVITY

DIRECTORATE GENERAL CIVIL AVIATION

- The existing DGCA organization has grown over the years on an “as required” basis. More recently, external statements regarding the effectiveness of Operational Safety Oversight has given rise to another look at processes and responsibilities within the organization.
- International Audits have made recommendations regarding improvements to keep abreast the growing Indian aviation sector.
- There appears to be a lack of resources, which may be due in part to the bureaucratic systems used to obtain and retain resources, but we can work within the available resources and make a difference.

RECOMMENDATION FOR CHANGE

- Within any organization there are processes and procedures that eventually become ineffective or non-productive.
- An old process can be improved over the years until it finds the upper limit of improvement, and then a complete change is required: Re-Engineering the Organization.
- In the present DGCA system, pilots work on pilot issues and engineers work on engineer issues. (Silos)
- Instead, the DGCA could work in line with Certificates, Manuals, and Licenses issued, with Primary and Secondary Offices of Responsibility.

RECOMMENDATION FOR CHANGE

- The DGCA issues Certificates and Licenses and approves a variety of Company Manuals.
- Air Operator Permit (AOP)
- Approved Maintenance Organization (AMO)
- Personnel Licensing (Various)
- There are a host of other certificates and approvals granted that are not listed here; e.g., CAR 21, Foreign Operators.

RECOMMENDATION FOR CHANGE

- When any work is required we should first consider what Certificate the subject matter comes under.
- This identifies the Primary Office.
- The Primary Office is responsible for:
 - Arranging all meetings;
 - Deciding what Secondary Offices require input;
 - Prepare the final decision on schedule for legal opinion;
 - Ensure the decision is delivered for DGCA signature on schedule.

RECOMMENDATION FOR CHANGE

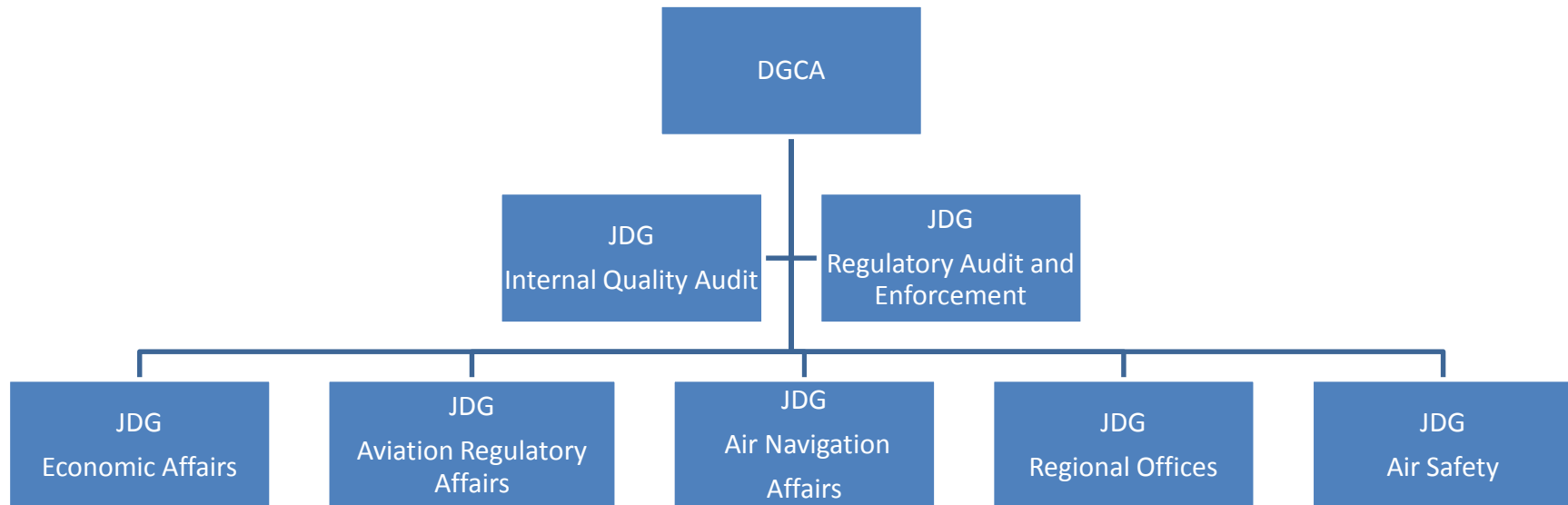
- Primary Office (PO) for each CAR in the Legislation clean-up:
 - Review all CARs and Rules, determine each PO;
 - Amend or delete all duplications;
 - Correct all omissions;
 - Establish a single CAR reference for any subject matter;
 - The numbering system for CARs could be changed and simplified.

ORGANIZATION

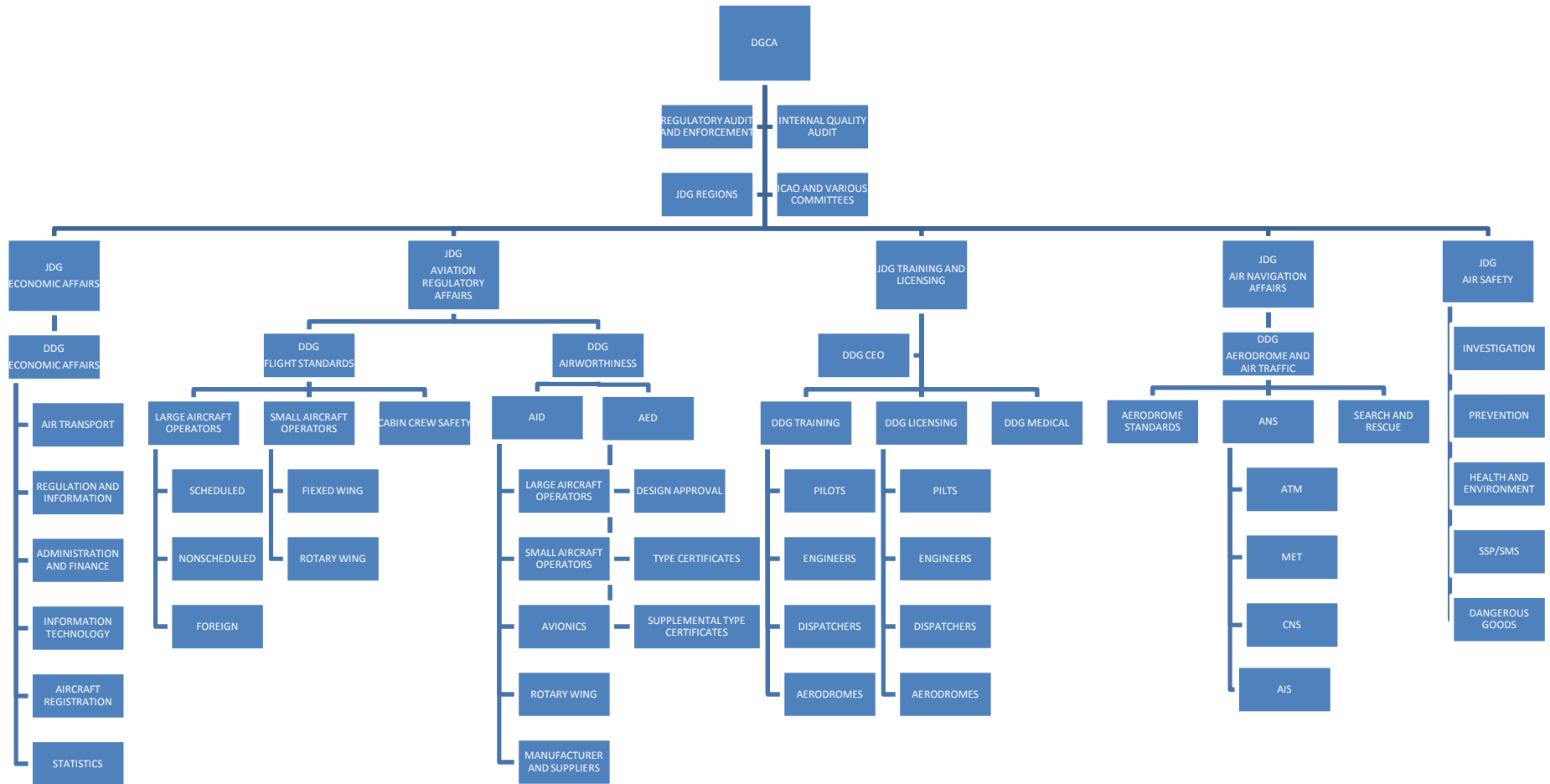
Regulatory Affairs Directorate: Flight Operations; Licensing; and Airworthiness.

- In order to conduct business under the Certificates, Licenses, and Manuals, we must Organize in accordance with these three controlling titles.
- Air Regulation enforcement and oversight will be the primary responsibility of Aviation Regulatory Affairs.

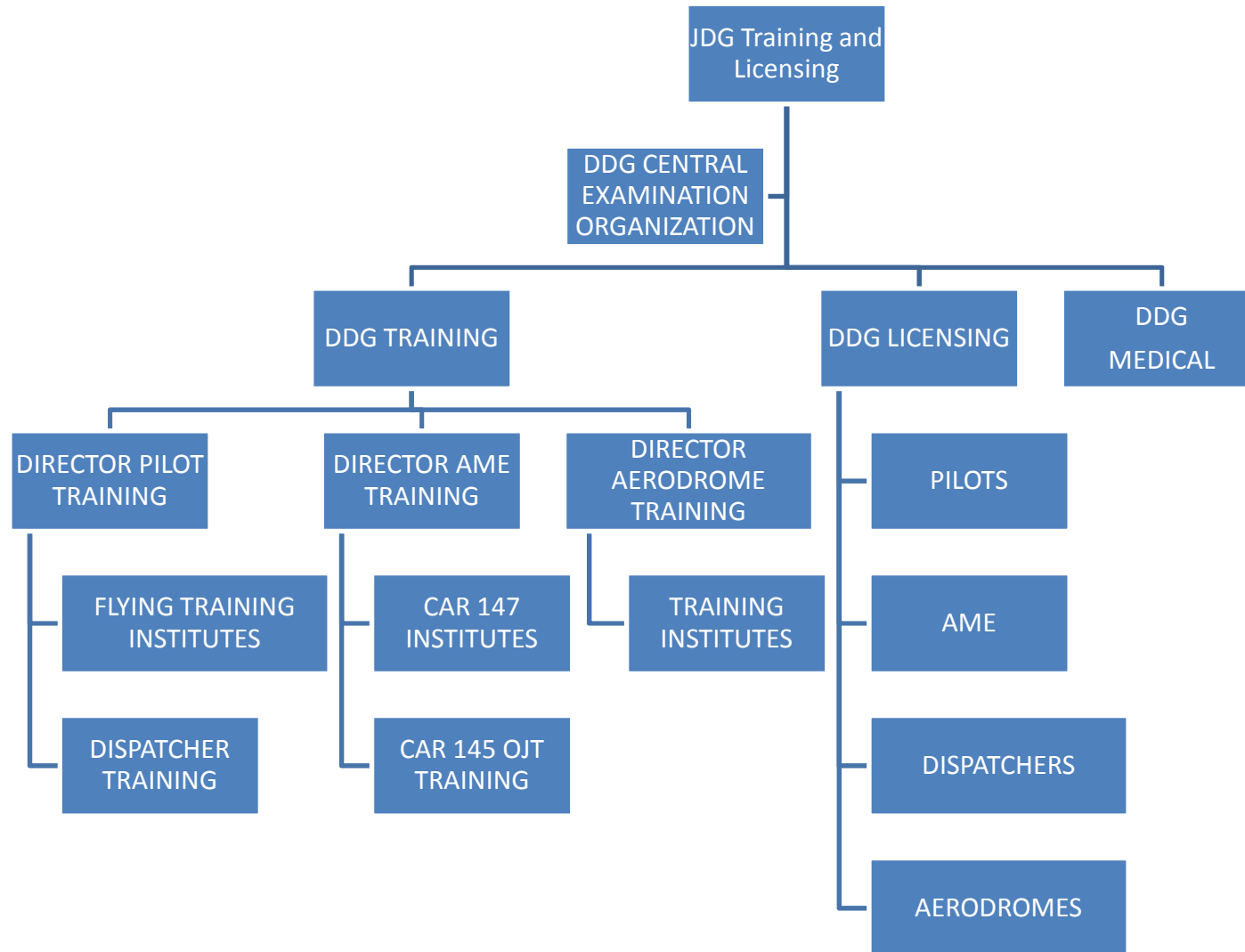
PROPOSED DGCA ORGANIZATION



LONG-TERM HQ ORGANIZATION



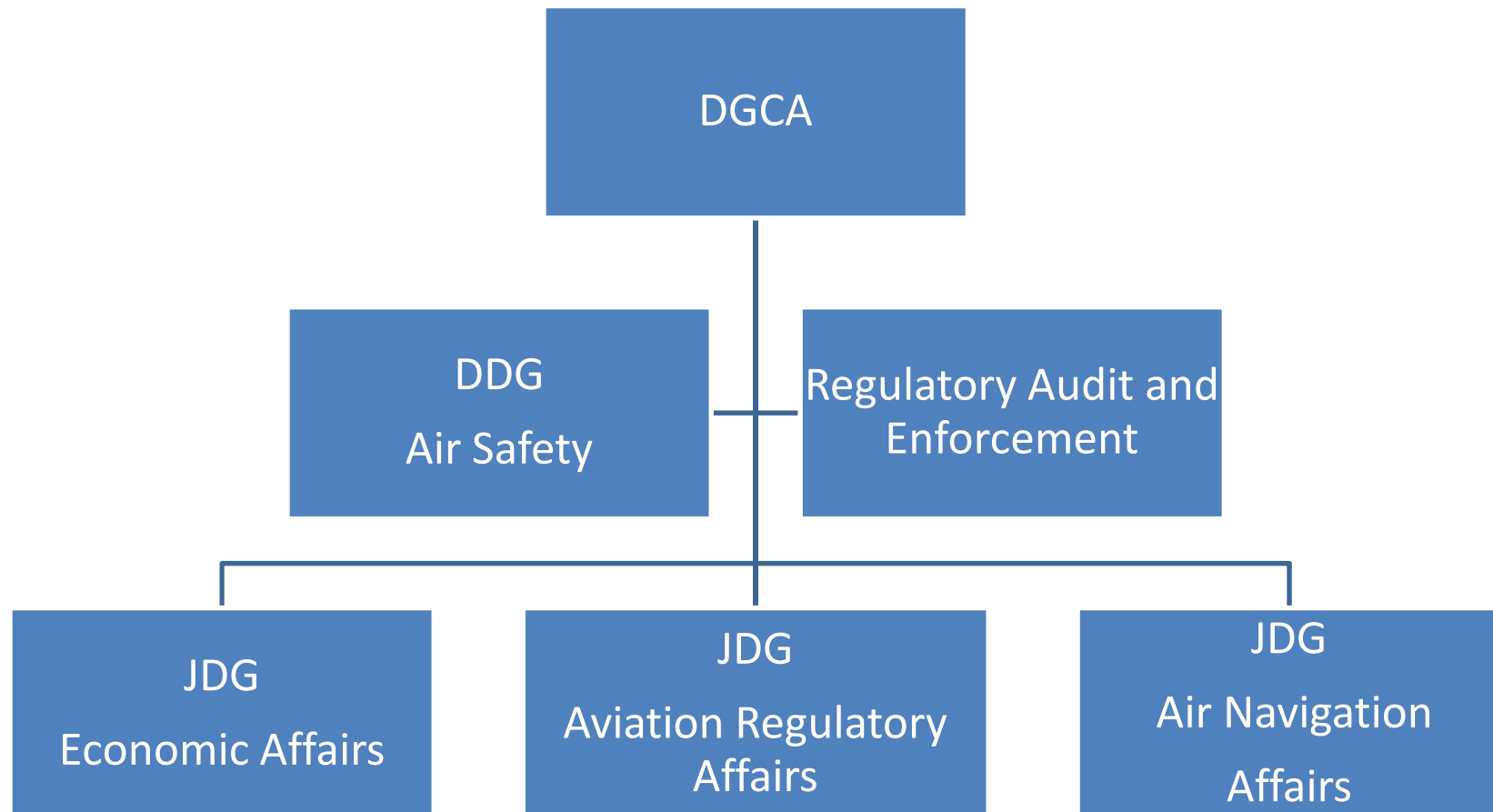
Training and Licensing Directorate



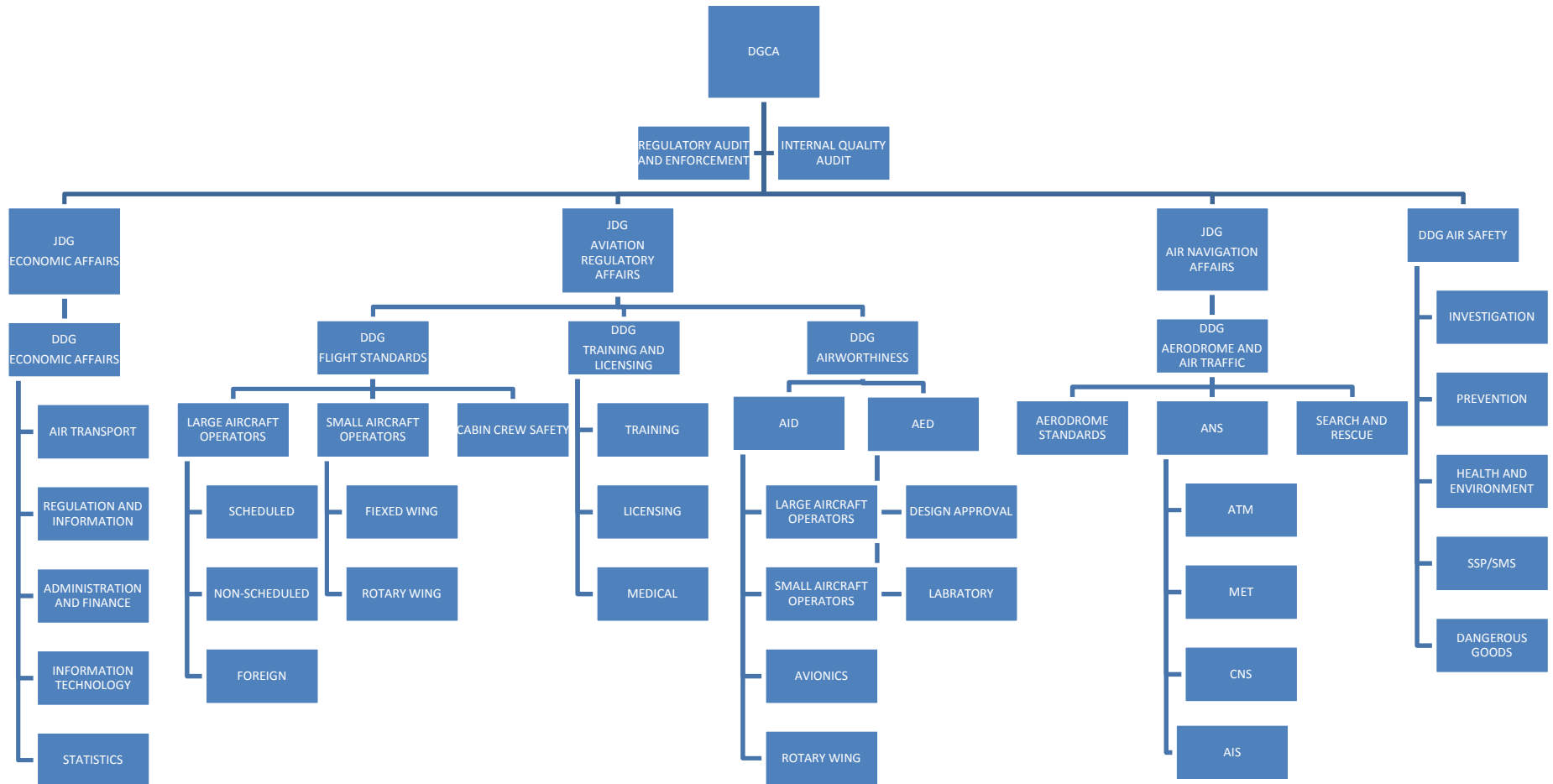
IMMEDIATE RE-ORGANIZATION

Due to the immediate need for change and recognition of existing resources, the following organization is proposed to be implemented as quickly as possible utilizing existing resources. This means only three (3) JDG's. Delays will cause Change Management difficulties.

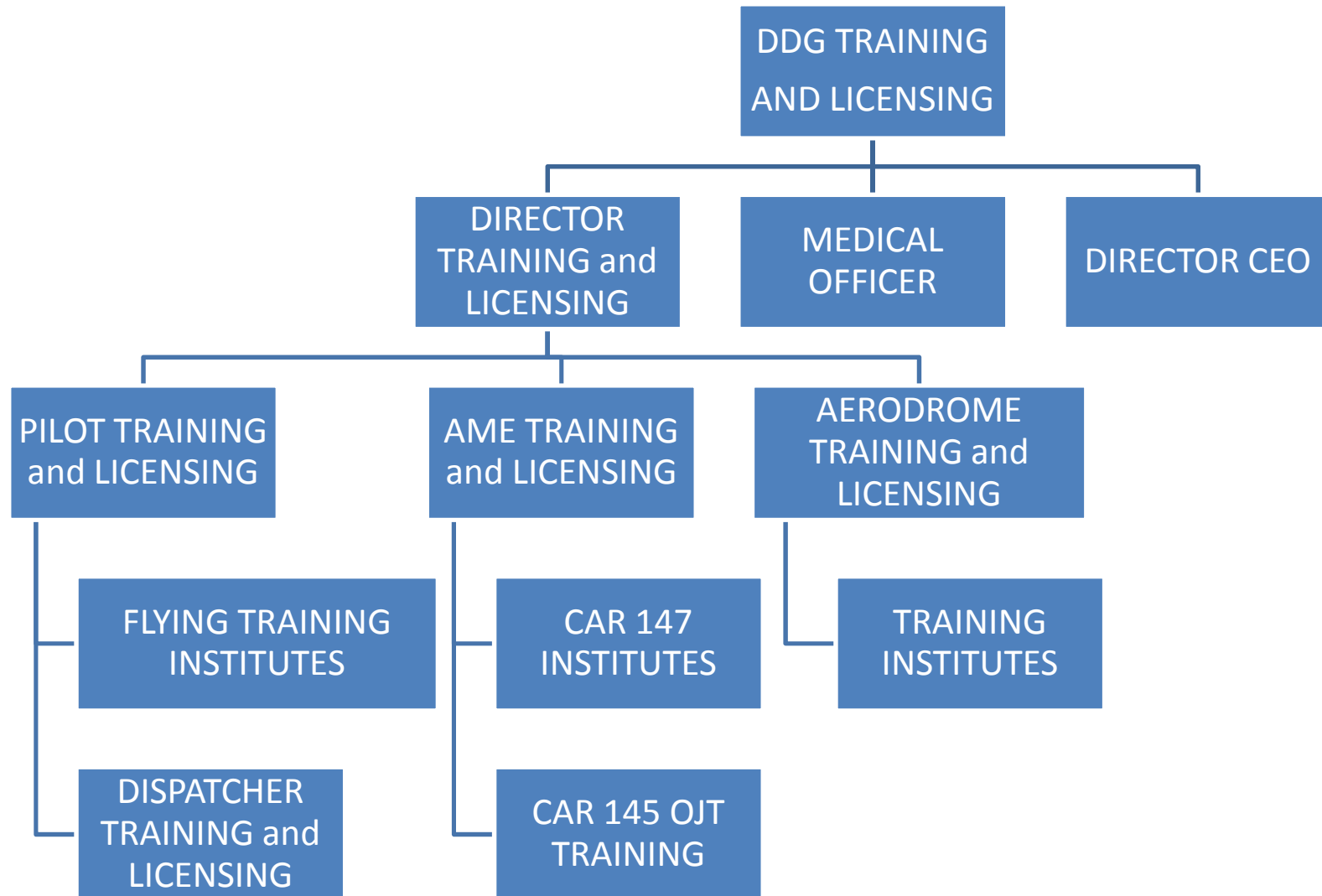
IMMEDIATE DGCA ORGANIZATION



IMMEDIATE HQ ORGANIZATION



IMMEDIATE TLD ORGANIZATION



Training and Licensing

- The most visible problem to the Industry is Training and Licensing.
- Pilots and Engineers are waiting for an unacceptable amount of time for the completion of the licensing process.
- **Immediate improvements are possible with existing resources.**
- Use the Examination as a part of the Learning Process.
- Make changes immediately.

CIVIL AVIATION LEGISLATION

LET'S HAVE A LOOK AT AN EXAMPLE OF A
PRIMARY OFFICE HOLDING RESPONSIBILITY
FOR SPECIFIC ISSUES UNDER THE
CERTIFICATES.

CIVIL AVIATION LEGISLATION

- Historically, the Airworthiness group were tasked with preparing and publishing most operational and airworthiness CARs.
- Presently, operational CARs such as CAR Section 2, Series O, Part II “Operation of Commercial Air Transport – Aeroplanes” is found within the Airworthiness Section 2, but it is primarily an Operations document.

WORKING IN SILOS

- Some in the industry call it tunnel vision, some say we are working in silos, but whatever we call it the truth is we are working within our own vocation without adequate input and coordination with other DGCA experts in the subject, from another perspective.
- Instead of focusing on Certificates and Licenses, the work is assigned by profession: Pilots work on Pilot things, Engineers work on Engineer things. That will never work, because Certificate responsibilities cross those borders of profession.
- The primary office for the Air Operator Permit should be Flt Operations.
- The primary office for AMO CAR-145 Certificates should be Airworthiness.
- CARs published under these Certificates should come from the primary offices, but there must be real input from the other office to cover the cross-over; the other perspective.

MANAGING CHANGE

- Management
 - Identify the threat against Change
 - Define corrective action or a plan of action
 - Implement the plan

MANAGING CHANGE

- Things affecting Change Management:
 - Fear
 - Apathy
 - Rumor

MANAGING CHANGE

- We should try to begin the changes necessary as best we can with existing resources.
- Plan action against the negative issues identified as being against Change (people, policy, procedures, rumor).

MANAGING CHANGE

- **Implement the Organization Chart**
(Threats are: Fear and Rumor).
- The resource gaps will then be clearly identified and attract more attention within the Ministry.
- Our structure will be more clear, and better understood by the industry. Productivity will improve.
- **Reorganize Training and Licensing**
- This is the most important part of the DGCA Organization needing increased efficiency and productivity. (Threats: Resources, Procedures)

MANAGING CHANGE

- **Aviation Legislation** is the foundation for the existence of the DGCA. Changing the policies related to Legislation and **cleaning up existing legislation would be a good place to begin to implement new procedures** and introduce the Primary and Secondary Office of Responsibility.
- **All work driven by ICAO Compliance Checksheet.**
- **Training and Licensing** should be brought under a single office, including the CEO and Medical, and policy and procedures established utilizing existing resources to greatly reduce the time it takes to issue licenses and endorsements.

MANAGING CHANGE

- **LEGISLATION**
- It is understood that in some cases the secondary office will write 90% of the CAR due to subject material, but that does not change the responsibility of the primary office to get the document drafted and published on schedule; e.g., Licensing subjects for an Operations CAR.
- Subject matter that is very much Airworthiness will be in Section 2 and subject matter that is very much Operations will be in Section 8, no matter what the primary office for drafting the CAR. The **CAR Section numbers** have much more to do with **subject matter** than with certificates. The Industry must know where to go for complete information on a subject, such as how to obtain approval for an aircraft maintenance program (Section 2 – Airworthiness) or an Operations Manual amendment (Section 8 – Operations).

MANAGING CHANGE

- The Aircraft Act 1934 should be amended to **enable the DGCA, the Aircraft Rules, and the Civil Aviation Requirements.**
- **DGCA Policy:**
- Define and agree in-house what kind of information should be **in the Act**, what kind should be in the **Rules**, and what kind of legislation should be contained in the **CARs**. Publish as company Policy.