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Lecture on:

Domestic Implementation of Air Safety and Security Regulations

by:

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PREAMBLE OF CHICAGO CONVENTION, 1944

- ❑ WHEREAS the future development of international civil aviation can greatly help to create and preserve **friendship** and understanding among the nations and peoples of the world, **yet its abuse can become a threat to the general security; and**
- ❑ WHEREAS it is desirable to **avoid friction** and to promote that cooperation between nations and peoples upon which the peace of the world depends;
- ❑ THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a **safe and orderly manner** and that international air transport services may be established on the basis of **equality of opportunity** and **operated soundly and economically** ;
- ❑ Have accordingly concluded this Convention to that end,

❑ WHAT IS SAFETY?

- Flight is inherently a risky venture, carried out in a hostile environment at great speed.
- “Safety” means **“freedom from danger or risks”**.
- Accordingly, some commentators tend to link the concept of **safety with accident prevention**.

SAFETY OF AN AIRCRAFT IS BASED ON OPERATIONAL ISSUES & HUMAN PERFORMANCES ETC.

❑ OPERATIONAL ISSUES

- i) Air Ground Communication**
- ii) Air Space Infringement** (Unauthorized Entry)
- iii) Bird Strike** (Birds collision with an aircraft)
- iv) Controlled Flight Into Terrain** (An accident, flown on ground, water etc.)
- v) Fire, Smoke and Fumes** (Aircraft Fire Risk from Battery powered items carried on aircraft)
- vi) Ground Operations** (all aspects of Ground Handling except runways)
- vii) Airworthiness** (aircraft suitability for safe flight)

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- viii. Loss of Control** (unintended departure from controlled flight)
 - ix. Loss of Separation** (for defined controlled air space is breached)
 - x. Runway Excursion** (Over running of aircraft from runway)
 - xi. Runway Incursion** (Unauthorized aircraft on a runway)
 - xii. Wake Vortex Turbulence** (Disturbances in Atmosphere)
 - xiii. Weather** (High level Ice Crystal Icing: Effects on Engines)
 - xiv. Emergency and Contingency** (Aircraft Exit Injuries)
 - xv. Level Bust** (Altitude deviation)

2. Human Performance

- i) Human Behaviour** (Ex: Pilot handling skills)
- ii) Design Philosophy** (Ex: Recovery from Failure)
- iii) Human Performance Modelling** (Ex: Errors occurring at each level of performance.
- iv) Organization and Human Performance** (Ex: Risk of Fatigue due to night shifts)
- v) Human Factors Training** (Ex: An Interruption breaks the thread of procedures between Pilots and ATC's)
- vi) Aeromedical** (Ex: Outbreak of contagious diseases)(Ebola; Measles; Corona V)

3. Enhancing Safety

- i) Cabin Safety** (Ex: Cabin Air Quality)
- ii) Flight Technical** (Ex: Aircraft Tyre Maintenance; Area Navigational System)
- iii) Safety Management** (Ex: Hazard Identification Sources)
- iv) Theory of Flight** (Ex: Aqua Planning)
- v) Safety Culture** (Strengths and Weaknesses of Air Navigation Service Provider)

☐ *What happens to an aircraft in the foreign sovereign air space without authorization?*

- (1) Intercepted for purposed of identification
- (2) Directed to leave the violate air space by a determined route
- (3) Directed to land for further investigation/prosecution.
- (4) Forced to land for further investigation/prosecution.

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- ❑ The tragic events of 11 September 2001, which constituted not only the most serious threat but also unprecedented damage to aviation safety, **have conclusively demonstrated that aviation safety goes beyond accident prevention from a technical point of view and extends to more profound political, strategic and legal dimensions.**
 - ❑ It includes preventive, remedial and punitive measures. Accordingly, **safety is not limited to accident prevention, but should be considered in a broader term as risk management.**⁶

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- ❑ Risks could be at a lower or higher level. Depending on the risks involved, the scope of the aforementioned management may range from routine suspension of a license of an unqualified pilot to the temporary grounding of all civil aircraft at the time of a crisis.
 - ❑ Safety is also a dynamic rather than static concept. It has a strong temporal sense. What was considered safe or unsafe yesterday may not be so today.
 - ❑ **Ex: 1919** – Twin Engine – Development of Aviation Technology – Twin Engine Aircraft stopped crossing oceans – Later in 1984 this Rule changed

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- ❑ Safety also includes security. In ICAO terminology, a distinction is made between “safety” and “security”. The former is related to the operational safety of aircraft, including personnel licensing and airworthiness, whereas the latter means “safeguarding civil aviation against acts of unlawful interference”.
 - ❑ Under the Chicago Convention, in line with the principle that every State has complete and **exclusive sovereignty** over the airspace above its territory, each contracting State is responsible for safety oversight within its territory.

❑ **Sovereignty: Article: 1:** *“The contracting States recognize that every State has complete and exclusive sovereignty over the air space above its territory”.*

❑ **Questions:**

- ICAO's Middle East Air Navigation Plan
- Air Defence Identification Zones
- Interception of Aircraft
- Aircraft in distress (Hijacking, Low Fuel etc.)
- Bush Doctrine
- Flight Information Region

❑ Chicago Convention and Aviation Safety

- Art. 37 Adoption of International :Standards and Procedures
 - ❖ (a) Communications systems and air navigation aids, including ground marking;
 - ❖ (b) Characteristics of airport and landing areas;
 - ❖ (c) Rules of the air and air traffic control practices;
 - ❖ (d) Licensing of operating and mechanical personnel;
 - ❖ (e) Airworthiness of aircraft;
 - ❖ (f) Registration and identification of aircraft;
 - ❖ (g) Collection and exchange of meteorological information;
 - ❖ (h) Log books;
 - ❖ (i) Aeronautical maps and charts;
 - ❖ (j) Customs and immigration procedures;
 - ❖ (k) Aircraft in distress and investigation of accidents;

❑ **Safety Oversight Responsibility**

- **Safety Oversight** forms the part of the **safety** regulatory process dedicated to ensuring that applicable **safety** regulatory requirements are met, and to the monitoring of the **safe** provision of services. Unless prescribed otherwise by international legislation, **safety oversight** in aviation is a national **responsibility**.

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- ❑ **Safety oversight may be defined** as “a function by means of which States ensure effective implementation of the safety-related Standards and Recommended Practices (SARPs) and associated procedures contained in the Annexes to the *Convention on International Civil Aviation* and related ICAO documents”.

❑ **Chicago Convention 1944:**

- Article 12: Rules of the Air
- Article 25: Aircraft in Distress
- Article 16: Search of Aircraft
- Article 33: Recognition of Certificates and Licences
- Article 28: Air Navigational Facilities and Standard Systems

❑ Adoption of International Standards and Procedures (SARPS): (Designated as Annexes):

- Annex-1 : Personnel Licensing
- Annex-2 : Rules of the Air
- Annex-8 : Airworthiness of Aircraft
- Annex-6 : Operation of Aircraft
- Annex-17 : Security

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- ☐ Measures relating to access control
 - ☐ Measures relating to aircraft
 - ☐ Measures relating to passengers and their cabin baggage
 - ☐ Measures relating to hold baggage
 - ☐ Measures relating to cargo, mail and other goods
 - ☐ Measures relating to special categories of passengers
 - ☐ Measures relating to the landside
 - ☐ Measures relating to cyber threats

☐ **Other Annexes which provide safety regulations for air navigation:**

- ☐ Annex-3: Meteorological services
- ☐ Annex-10: Aeronautical telecommunications
- ☐ Annex-11: Air traffic services
- ☐ Annex 14: Aerodromes
- ☐ Annex-15: Aeronautical information services

□ **Some others aim at the establishment of uniform common systems:**

- Annex-4: Aeronautical charts
- Annex-5: Units of measurement
- Annex-7: Registration marks

❑ **Some Annexes provide for measures and procedures in the event of distress:**

- Annex-12: Search and Rescue or accidents
- Annex 13: Aircraft Accident Investigation

❑ **Some address matters relating to transport of passengers and goods**

- Annex 9: Facilitation,
- Annex 18: The Safe Transport of Dangerous Goods by Air). Finally, Annex 16 addresses matters of environmental protection, and Annex 17 covers aviation security.

❑ Compliance of Safety Standards and Recommended Practices in India

- a. D.G.C.A (Directorate General of Civil Aviation) is the Regulatory Body in the field of Civil Aviation primarily dealing with safety issues. D.G.C.A takes all necessary action arising out of Universal Safety audit programme (USOAP) of ICAO.
- b. Air safety Directorate in India coordinates regional air safety offices with Air safety Headquarters.

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- c. Air worthiness directorate in India ensures effective implementation of safety related standards and recommended practices contained in ICAO annexes.
 - d. Large part of Air Law in India is contributed and developed by ICAO. National aviation laws are interlinked with international air law.
 - e. Aviation security clause is put in all bilateral air services agreements in pursuance to resolution dated. 25.06.1986. of ICAO.
 - f. International convention lead to three acts in India viz Tokyo convention Act 1975, Anti hijacking Act 1982 and Suppression of unlawful Acts against safety of Civil aviation Act 1982.

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- g. Section 5A was added in 1972 to Aircraft Act, 1934 thereby authorizing DGCA to issue directions with regard to various matters viz Aerodromes, maintenance of aircraft, air routes, & equipments to be carried for safety in the aircraft. Non-compliance of the directions could lead to 6 months rigorous imprisonment and / or fine up to Rs. 10 Lacs. In the interest of public safety, central Govt could issue orders under section 6 of the Act.

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- h. As part of India's commitment to safety, IATA and its members developed IATA operational safety Audit (IOSA), the first global standard for airline operational safety management.
 - i. The DGCA has set up standing Aviation Regulatory Advisory Panel (ARAP) for the review of current regulations in light of best international practices and globally harmonized standards to keep the regulations current and dynamic.

❑ **DGCA and Air Safety Regulations:**

- DGCA a regulatory authority in the field of civil aviation in India
- Responsible for regulation of air transport services to/from/within India and for enforcement of Civil Air Regulations, Air Safety and Airworthiness Standards.
- Also co-ordinates all regulatory functions with International Civil Aviation Organization.

❑ The functions of the Air Safety Directorate are as under:

- Investigation of Civil Registered Aircraft Incidents
- Accident/Incident Prevention work
- State Safety Program and Safety Management Services
- Approval of Flight Safety Organisation and Personnel
- Any other work assigned by the Director General
- Regional Air Safety Offices
- Coordination of Regional Air Safety Offices with Air Safety Directorate (HQ).

❑ NATIONAL AVIATION SAFETY PLAN, 2018-22

- The National Aviation Safety Plan (NASP) sets out a continuous improvement strategy, which helps to achieve objectives of the State through implementation of effective safety oversight and State Safety Programme

❑ Key Safety Priorities

- Airborne conflict; Controlled flight into terrain; Runway excursions and overruns; Wildlife and bird strikes; Loss of control in flight; Runway Incursion and ramp safety; Deficient maintenance; Aviation Procedures & Documentation,

❑ AVIATION SECURITY REGULATIONS IN INDIA:

- ❑ Tokyo Convention 1975
- ❑ Anti-Hijacking Act, 1982
- ❑ Anti-Hijacking Act, 2016
- ❑ Unlawful Seizure against the Safety of Civil Aviation 1982
- ❑ 1994 Amendments to the above Acts

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- ❑ **Tokyo Convention:** It states that “any act or omission taking place on board an Indian registered aircraft while in flight elsewhere than in or over India which, if taking place in India, would constitute an offence under any law in force in India”.
 - ❑ **Anti-Hijacking Act 1982 (Repealed):** It states that “ whoever commits the offence of hijacking shall be punished with imprisonment for life and shall also be liable to fine”
 - ❑ **Anti-Hijacking Act 2016:** The scope of criminal liability is expanded to include any person who not only commits, but also threatens to commit the crime of hijacking, and persons who knowingly assist an offender to evade investigation, prosecution or punishment.

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- ❑ **Suppression of Unlawful Acts against the safety of civil aviation Act, 1982:** It states that, whoever at any airport unlawfully and intentionally, using any device substance or weapon; (a) commits an act of violence which is likely to cause grievous hurt, or death of any person; or (b) destroys or seriously damages any aircraft or facility at an airport, or disrupts any service at the airport, endangering or threatening to endanger safety at that airport shall be punished with imprisonment for life and also be liable for fine.

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