

USE OF DRONES: EMERGING LEGAL ISSUES AND CHALLENGES

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Law and Technology

- Law follows technology or technological developments necessitate the legal regulations. It is true with the aviation technology. In a span of over a century, from the invention of aircraft by Wright brothers in 1903 to the present we witness a lot of technological advances in aviation industry.
- Propeller -driven planes giving way to jets, which have now been surpassed by planes that can fly into space. The ongoing development and use of unmanned aerial vehicles (UAVs) illustrates well the observation that “Law lags science; it does not lead it.”
- In aviation parlance, UAVs are the leading-edge of contemporary aeronautical science and engineering and a product of a century of manned flight experience. However, UAV operations have outpaced the law in that they are not sufficiently supported by a dedicated and enforceable regime of rules, regulations, and standards respecting their integration into the national airspace.



UAVs and Complex Legal Questions

- With this technological frame of reference in mind, how, and under what rules, can these systems be operated in national and international airspace?
- This question is of considerable importance to scientists and researchers who wish to use this technology for civilian and commercial usages.
- This question is also of great importance to law enforcement agencies patrolling the borders or responding to situations where UAVs could save lives or prevent crimes such as piracy on the high seas or drug smuggling and trade in human cargo.
- Due to the lack of regulations, there are many questions pending, pertaining to complex questions such as their airworthiness certification, personnel licensing, classification, registration, collision avoidance, traffic management, communication protocols, security issues, environmental protection, legal responsibility, insurance etc

Benefits of UAVs/Drones

- Unmanned Aerial Vehicles (UAVs)/Drones have proven their worth on the battlefields of Iraq, Afghanistan, and Lebanon. UAVs offer a relatively low-cost, low-risk alternative to manned aircraft in the military setting.
- The civilian applications may include for shooting Movies, TV ads, Journalistic purposes, by farmers for crop dusting, commercial photography, Media Photography, Weather research, Agricultural spraying and monitoring, Mineral exploration, oceanographic research etc,,
- Technological advances in communications, control, and optics in recent decades will no doubt increase pressure to introduce UAV systems for a host of domestic applications.
- Law enforcement agencies are seeking to use UAVs to police borders, control crowds, track criminals, detect illegal narcotics activities, and spot crime.

UAVs and Legal Issues

- Unmanned aerial vehicles, also known as UAVs or drones, have decentralized airspace access, allowing agriculturists, construction workers, and other civilian users to integrate aerial monitoring into their daily work.
- This technological revolution comes with a set of concerns, upon the proprietary, reputational, and security interests of individuals.
- An appropriate regulatory response and new policy recommendations must go beyond the current regulatory intervention at national and international level.
- In spite of the myriad uses of UAVs, the existing legal regime is inadequate and there is a urgent need to discuss the legal hurdles in operating UAVs in the national airspace systems.
- Due to the lack of regulations, there are many questions pending, pertaining to complex questions such as their airworthiness certification, personnel licensing, classification, registration, collision avoidance, traffic management, communication protocols, security issues, environmental protection, legal responsibility, insurance etc

UAVs and Legal Issues

- UAVs are becoming popular in the recent past. As the technology is becoming cheaper, more organizations are using the same, both for civilian as well as for military purposes.
- The absence of a distinctive body of rules and regulations integrating UAV flight into the national airspace, coupled with an existing time-consuming certification process for UAV flight in the first place, is an impediment and constraint for present and future UAV development.
- Some organizations like American Civil Liberties Union (ACLU) are proposing that it should be made mandatory before deploying UAV, to obtain a warrant, if it is essential to intrude the privacy of a citizen etc.
- There are fears in certain sections of society, that UAVs may trample privacy rights of citizens if they are not properly regulated. Other issues like Liability, IPRs. Airworthiness and son.

UAVs and Safety and Privacy

- Legal factors play a pivotal role in the implementation of UAS into civilian airspace. Despite being its multifaceted usages and Sound technology, implementation of UAS has been restricted to the civilian usages due to the legal inadequacies.
- The major reasons behind its limited usage is the concern for the safety and privacy rights of the people. Safety is a key requirement in the civil applications of UAS.
- UAS need to achieve a level of safety and here the level of safety is entirely different in case of manned aircraft. Safety in manned aircraft is limited to the protection of the pilot, crew and passengers.
- While in UAS, safety means the avoidance of interference, collision with other users of the skies and third parties on the ground and protection to the entire system and its components, not only to the UA. These issues need to be addressed in the prospective regulation.
- Safety is the basic objective behind all the regulations of ICAO

Integration of UAVs into NAS

- The challenge for anyone advocating the use of unmanned aircraft for civilian or non-military purposes is to determine where their aircraft can be flown without violating national or international aviation regulations.
- Since no global body of regulations or laws applies across borders to any category of unmanned aircraft, operators must navigate their way through the patchwork of national regulations and international standards.
- Among the questions to be resolved in advance of UAV integration into the NAS are what on-board safety equipment a UAV possesses and whether the aircraft has a high visibility paint scheme enabling other pilots to see and avoid it and observers to obtain and track it.
- Moreover, current law does not address what happens when the communications link between a UAV and ground resources fails, or whether a UAV must have position and anti-collision lights, and if so, whether procedures must exist if the lights are inoperative on a UAV operating under applicable FARs for manned aircraft.
- With respect to air traffic control, the law does not express how a UAV controller must communicate with other airspace users or even what minimum communications equipment must exist in UAV operations.

Legal Framework

- Accidents and injuries may attract law against: UAV operators, manufacturers, maintenance and safety contractors, contracting parties, and air traffic controllers.
- A regulatory framework is needed to develop the UAV industry for civil use in common airspace.
- Legal Framework:
 - International Air Law including the Chicago Convention and the ICAO
 - What is International Air Law?
 - Domestic Air Law including the Aircraft Act 1934, Aircraft Rules 1937, other acts including Air Safety, Security and Liability Laws

Chicago Convention and UAVs

- Article 3 of the Chicago Convention: Civil and Military Aircraft
- Article 8 of the 1944 Chicago Convention introduced a prohibition against unauthorized flights of UAVs over member States.
- Consequently, before a UAV can be granted authorization, International regulations demand that it complies with the relevant airworthiness requirements, licensing and certification system security aspects and framework liability regulations.
- At an International level Article 8 of the Chicago convention requires, a set of rules agreed upon by the contracting States.
- Annex 13 has been amended to include UAS explicitly and changed the definitions of 'accident' and 'serious accident' between named and unmanned aircraft.
- Various Annexes of the Chicago Convention

Annexes 1 to 19 and UAVs

- The aim of most of the annexes is to promote progress in flight safety, particularly by guaranteeing satisfactory minimum standards of training and safety procedures and by ensuring uniform international practices.
- Most of these annexes are going to be applicable to the forthcoming UAV and drone technologies
- Article 90 Adoption & amendment of Annexes
- Adoption of the Annexes by council will be by vote of 2/3 of the council – Art 54 (1)
- Council shall immediately notify all contracting states of coming force of any Annexes or amendment thereto.

ICAO and International Air Law

- The Chicago Convention has also established principles, structures and procedures for the International Civil Aviation Organization (ICAO) have been covered in Part II from Articles 43 to 66 of the Convention.
- The ICAO has been responsible for establishing guidelines and standards for navigational aids, technical rules for landing areas, aircraft certification, licensing of pilots and other specialized personnel.
- ICAO is responsible of Development of Int. Air Law including the present UAVs and Drones Regulations
- The existing legal regime of ICAO for the implementation of UAS is highly inadequate and deficient. A pragmatic and economic legal framework is to be framed which provides certainty to the users and manufacturers of UA industry to promote investment. As the technology for the research already exists, the new regime should come up for its civilian usage without compromising the safety and privacy of the people.

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ICAO and UAVs

- Recently the ICAO has published a circular to guide the development of harmonized standards and practices for UAS. That document states:
- “The goal of ICAO in addressing unmanned aviation is to provide the fundamental international regulatory framework through Standards and Recommended Practices (SARPs), with supporting Procedures for Air Navigation Services (PANS) and guidance material, to underpin routine operation of UAS throughout world in a safe, harmonized and seamless manner comparable to that of manned operations. This circular is first step in reaching that goal.”
- The absence of a distinctive body of rules and regulations integrating UAV flight into the national airspace, coupled with an existing time-consuming certification process for UAV flight in the first place, is an impediment and constraint for present and future UAV development.

Regulatory Challenges

- No regulatory and procedural guidance for UAVs.
- No specific legal frame work for UAVs.
- The safety of other airspace users and public needs to be ensured.
- UAV Policy should be formulated to regulate it's orderly growth. It needs to be brought within the ambit of aviation regulator.
- Safety is major concern in UAVs.
- UAV flying in the same airspace as that of manned aircrafts poses certain safety challenges.
- A regulatory framework need to be designed and put in place, to integrate the UAVs into civil airspace.
- A close cooperation and coordination is required between ICAO, aviation regulator of the country and various stakeholders in UAV sector to ensure success of UAV sector commercially.

Initiatives of the by different Countries

- Australia's Civil Aviation Safety Authority (CASA), for example, has developed guidance to UAV controllers and manufacturers as to the construction, operation, and means by which UAV systems may safely and legally operate.
- In Japan, UAVs have proved especially successful in the area of agriculture. Japanese Agriculture Aviation Association (JAAA), promote the licensing of over 1500 unmanned helicopters for use in spraying and plowing rice fields.
- JAAA has established a registration system for all unmanned helicopters, developed safety standards in the areas of flight performance, airframes, and inspection and maintenance, and now requires all UAV users and operators to receive training and certification.
- The United Kingdom, meanwhile, through the Directorate of Airspace Policy of the UK Civil Airspace Authority (CAA), had developed "Unmanned Air Vehicle Operations in UK Airspace—Guidance". The UAV operations must be as safe as manned aircraft insofar as they must not present or create a greater hazard to persons, property, vehicles or vessels, whilst in the air or on the ground than that attributable to the operations of manned aircraft of equivalent class or category

Initiatives by other Countries Cont....

- Canada: established a WG to amend existing Canadian Aviation Regulations to incorporate UAS operations into Canadian airspace with minimal changes; States: at present a civil UAS operator may have access to NAS (National Airspace System) if they have a special Airworthiness Certificate.
- United States FAA is making efforts to enable small UAS to operate in certain portions of NAS; Civil Aviation Safety Regulations consolidate rules governing all unmanned aeronautical activities into one body of legislation. Guidelines are published for manufacturers and controllers to permit the UAS to operate legally and safely within Australian Airspace.
- Australia: Civil Aviation Safety Regulations consolidate rules governing all unmanned aeronautical activities into one body of legislation. Guidelines are published for manufacturers and controllers to permit the UAS to operate legally and safely within Australian Airspace.

India and UAVs

- New policies, procedures and approval processes.
- To define operational and certification requirements.
- There is an urgent need to put in place privacy laws in the country to facilitate orderly growth of the UAVs. The widespread use of UAVs by the law enforcement agencies and other organizations, has a potential of endangering the rights of citizens.
- Coordinated approach among various stakeholders required.
- Regulation is essential for healthy and sustainable commercial growth of this emerging sector in Aerospace Industry.
- In India we need UAV Policy, legislation that includes airworthiness, Certification, remote piloting of UAV, liability regime, Compliance issues etc.

UAVs and DGCA Initiations in India

- In August, The Economic Times, reported that Amazon Prime Air deliveries would be made in the cities of Bangalore and Mumbai before the Hindu festival of Diwali; the festival occurred in October, but no customer deliveries have been made to date.
- Following Amazon's announcement, this past October the Directorate General of Civil Aviation announced that until proper rules and regulations are formulated, the use of drones by civilians will be illegal.
- The DGCA made an announcement on October 7th 2014: "Till such regulations are issued, no non government agency, organization, or an individual will launch a UAS in Indian Civil Airspace for any purpose whatsoever." No date has been given for these regulations. (This announcement likely explains Amazon's failure to begin testing Prime Air.)
- In spite of the uncertain regulatory future, domestic startups are producing and using drones for both security and commercial purposes.
- Drones have been used to provide services ranging from disaster relief, security and surveillance, and aerial photography. Here is a list of notable Indian drone startup companies:

Role of Directorate General of Civil Aviation (DGCA)

- India's DGCA initially banned the civil use of drones in October, 2014.
- Draft Guidelines for Obtaining Unique Identification Number and Operation of Civil Unmanned Aircraft System (2016) - first attempt to regulate drones.
- Salient features of the Draft guidelines:
 - Every single drone flying above 200 feet to be registered
 - Operator will need aircraft level training
 - Authorities need to be notified of every flight
 - Drones to be flown within Visual Line of Sight
 - All-weather deliveries not possible
- Guidelines are extremely stringent, and are clearly not designed to cover commercial large-scale deliveries like those proposed by Amazon and similar entities.
- Privacy concerns not addressed properly & Huge burden on Aviation Authorities

DGCA and UAVs

- The Indian draft guidelines, issued in April 2016 by the DGCA, also deal with these issues.
- As per the guidelines, UAVs have been categorized by weight into four classes: micro, which is up to 2 kilos; mini, exceeding 2 kilos but less than 20; small, exceeding 20 kilos and less than 150; and large, exceeding 150.
- All UAVs require a Unique Identification Number (UIN) issued by the DGCA. A UIN can be granted only to a citizen of India or to a company that is incorporated and has its principal place of business in India, with substantial control vested in Indian nationals.
- The UIN is a positive security measure with which any UAV operating in India can be tracked and identified. However, permitting primarily only Indian nationals to obtain a UIN would impede economic growth and technological progress.

UAVs and DGCA

- The procedure and documentation for granting a UIN is already quite elaborate, requiring address and identity proof; information concerning the purpose of the UAV's operation as well as its specifications, flight manual, and manufacturer's maintenance guidelines; character verification of the operator by the local subdivisional police; and permission from the Department of Telecommunications to use the radio frequencies required for the UAV's operation.
- Moreover, all civilian UAV operations at or above 200 feet in uncontrolled airspace for any purpose will require an unmanned aircraft operator permit (UAOP) from DGCA, while operation of civilian UAVs in controlled airspace is restricted.¹⁴³ UAVs can enter controlled airspace only with the prior approval of the air navigation service provider, which will be in the form of an airways clearance.
- In addition, all UAV operators have to ensure that the UAV is flown within a 500-meter visual-line-of-sight during the entire flight.¹⁴⁵ With these precautions in place, it may be redundant and restrictive to exclude foreign players from obtaining a UIN.

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Gaps in the Indian Approach

- In a federal system, three regulatory components are required to ensure that the government promotes the progress of a given industry: (1) identification of all possible concerns, both from an individual rights and collective security standpoint, that can bring the industry under the scrutiny of regulators; (2) framing of clear rules that optimally balance these concerns with an efficient and competitive functioning of the industry marketplace; (3) unification of the laws applicable to the industry so that there is uniformity in regulatory practice throughout the country.
- The first flaw in the Indian approach to UAVs is that all possible concerns have not been identified with care and sagacity. The guidelines take a very airspace-centric view, with little acceptance of the reality that what the present consumer UAV technology does is substantively different from competing with manned aircraft for high-altitude airspace.
- Ironically, the guidelines overtly restrict UAVs from operating in controlled airspaces but in all other respects regulate them with the primary intent of avoiding collisions. In doing so, the guidelines lose sight of the fact that in low-altitude spaces, the probability of conflict is actually a lot higher between landowners and UAV operators.

Conclusion

- The Guidelines are a necessary first step as civil use will be beneficial in a variety of ways.
- Drones have varied commercial uses from videography to tourism to disaster management and even package delivery.
- The proposed Guidelines also need to take into account the issues of privacy of individuals and the safety of payload/cargo. At the same time, the proposed Guidelines need to be comprehensive to have a positive impact on the industry.
- DGCA must also identify specific offenses within the licensing framework for UAVs and specify punishments for the same.
- While regulations are necessary to monitor the UAS to ensure security and safety, DGCA should not intervene to such an extent that it becomes virtually impossible to commercially use the device.
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The Road Ahead

- The drones industry has a potential of providing an economic boost along with attracting global investments.
- The economic benefits also play into the need to innovate, potentially not only delivering better drones, but associated inventions as well.
- However, the rise of drones has presented several policy challenges in terms of personal privacy, public safety, international airspace, civil rights etc. Thus, the success of drones would depend on achieving a symbiotic integration of law, tax and civil liberties.
- As drones gain more popularity in the eyes of the public and garner support for potential markets, a timely institution of robust and flexible drone regulations would go a long way towards tapping into and building upon this opportunity.
- Taking lessons from history, different stakeholders should come together and work towards providing a comprehensive policy framework for drone regulation to ensure that a balance between innovation, progress and safety is adequately maintained.

AIRCRAFT LEASING AND FINANCING

- MEANING AND CONCEPT OF LEASE FINANCING
 - A lease transaction is a commercial arrangement whereby an equipment owner or manufacturer conveys to the equipment user the right to use the equipment in return for a rental.
 - Lease denotes procurement of assets .
 - A tenancy for years greater than 1 year must be in writing in order to satisfy the Statute of Frauds
- The term of the lease may be fixed, periodic or of indefinite duration
- Rent is a requirement of leases in common law jurisdiction, but not in civil law jurisdiction.
- **Importance of Lease:** Leasing industry plays an important role in the economic development of a country by providing money incentives to lessee.

TYPES OF LEASE

- **Financial Lease:** Long-term, non-cancellable lease contracts are known as financial leases.
- **Operating Lease:** The lessee is not given any uplift to purchase the asset at the end of the lease period
- **Wet lease:** A wet lease is a leasing arrangement whereby one airline (lessor) provides an aircraft, complete crew, maintenance, and insurance to another airline (lessee).
- **Dry lease:** A dry lease is a leasing arrangement whereby an aircraft financing entity or lessor provides an aircraft without insurance, crew, ground staff, supporting equipment, maintenance, etc.
- **Sale and Lease Back:** It is a sub-part of finance lease. Under this, the owner of an asset sells the asset to a party (the buyer), who in turn leases back the same asset to the owner in consideration of lease rentals.
- **Leveraged Leasing:** Under leveraged leasing arrangement, a third party is involved beside lessor and lessee.
- **Direct Leasing:** Under direct leasing, a firm acquires the right to use an asset from the manufacturer directly.

Comparison between Operating lease and Financial Lease

- In a finance lease the lessee has use of the asset over most of its economic life and beyond (generally by making small 'peppercorn' payments at the end of the lease term).
- In an operating lease the lessee only uses the asset for some of the asset's life.
- **FINANCING**
- The act of providing money in the form of a loan or capital is known as finance.
- There are two types of Financing:(1) Debt Financing(2) Equity Financing
- **Debt Financing:**Debt financing is a strategy that involves borrowing money from a lender or investor with the understanding that the full amount will be repaid in the future, usually with interest

Advantages and Disadvantages of Debt Financing

- Experts indicate that debt financing can be a useful strategy, particularly for companies with good credit and a stable history of revenues, earnings, and cash flow
- The main disadvantage of debt financing is that it requires a small business to make regular monthly payments of principal and interest.
- **Sources of Debt Financing:** Small businesses can obtain debt financing from a number of different sources. These sources can be categorised, private and public sources. Private sources of debt financing include friends and relatives, banks, credit unions, consumer finance companies, commercial finance companies, trade credit, insurance companies, factor companies, and leasing companies. Public sources of debt financing include a number of loan programs provided by the state and federal governments to support small businesses.

Equity Financing

- **Equity Financing:**
- Equity financing is a strategy for obtaining capital that involves selling a partial interest in the company to investors
- **Advantages and Disadvantages:**
- The main advantage of equity financing for small businesses, which are likely to struggle with cash flow initially, is that there is no obligation to repay the money.
- The main disadvantage of equity financing is that the founders must give up some control of the business.

INTERNATIONAL CONVENTIONS AND TREATIES ON LEASING AND FINANCING

- The Cape Town Convention on International Interests in Mobile Equipment and the Protocol to the Convention on International Interests in Mobile Equipment on Matters Specific to Aircraft Equipment, together usually referred to as the **Cape Town Treaty**, is an international treaty intended to standardize transactions involving movable property, particularly aircraft and aircraft engines.
- **Objectives of the Treaty**
- to provide for the creation of an international interest which will be recognised in all Contracting States;
- to provide the creditor with a range of basic default remedies and, where there is evidence of default, a means of obtaining speedy interim relief pending final determination of its claim on the merits;

Application of the Treaty

- Chapter I, Article 3 says about the sphere of application of the convention. Para 1 of this convention provides that this convention shall be applicable when, at the time of the conclusion of the agreement, the debtor is situated in a Contracting State.
- However, the fact that at the time of its conclusion the creditor is situated in a non-Contracting State does not affect the applicability of this Convention.
- **International Interest**
 - An international interest is constituted under the Convention/Aircraft Protocol when the relevant agreement satisfies few conditions:
 - First, the agreement must be in writing.
 - Second, it must relate to an aircraft object of which the obligor has the power to dispose. Third, the agreement must describe the aircraft object with reference to its manufacturer's serial number, the name of the manufacturers, and its model designation.

Remedies Available under the Treaty Upon Default

- Chapter III Article 8 of the convention says about the remedy of the chargee.
- A chargee under a security agreement may exercise one or more of the following remedies in the event of default:
 - first, it may take possession/control of any aircraft object charged to it;
 - second, it may sell or grant a lease of such object; and
 - third, it may collect or receive any income or profits arising from the use of the aircraft object
- **Role of Commercial Reasonableness**
- All remedies given by the Convention/Aircraft Protocol shall be exercised in a commercially reasonable manner. A remedy shall be deemed to be exercised in a commercially reasonable manner where it is exercised in conformity with a provision of the security agreement except where such a provision is manifestly unreasonable

LEASING IN INDIA

- India has signed, but not yet ratified, the Cape Town Convention. Once ratified, lessors and financiers will be able to take all the advantages provided by the Cape Town Treaty. Leasing activity was initiated in India in 1973 when the first leasing company of India, named First Leasing Company of India Ltd. was set up.
- **CONCLUSION**
- At the end we can say that in modern times aircrafts are sine qua non. It is the method by which goods and people are transported both nationally and internationally in ever increasing numbers. These aircrafts are very expensive and it needs billion of dollars in purchasing aircraft. It is therefore most of the airlines needs financial support from some financial institution. For the growth of the airlines, leasing and financing is sine qua non

Thank you