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A STUDY ON INDIAN LEGAL REGIME AND COMPARATIVE ANALYSIS OF DRONES REGULATION: INDIA'S RESPONSE TO A MAJOR POLICY REVOLUTION

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Abstract

The recent spurt in automation technology advanced with visualization techniques, design specifications and impeccable mapping, makes possible today something that was unimaginable a few years ago. Added to this is the ongoing advances, the possible application of drones suddenly appears to be innovative and limitless. Drones or simply, Unmanned Aerial Vehicles (UAVs) is the recent development in robotics technology and has been trending in media of its wide application all over the country. Together with these changes, India seems sparingly to have been expending with a comprehensive drone technology. In common terminology, drones refer to aerial vehicles, which can fly without a human operator. The *International Civil Aviation Organization (ICAO)*, charged with codification and regulation of airways, recognizes drones as UAVs. It has also coined another term for these UAVs, as Remotely Piloted Aircraft System (RPAS).However, with the widespread application of these aerial vehicles backed without any regulations, the procedure for compliance requires in place, a more rigid legal mechanism. The *Ministry of Civil Aviation* has been constantly engaged towards working to establish a global standard drone regulation that would permit, with appropriate safeguards, the commercial application of various drone technologies. Consequently, the Drones Regulations 1.0 has been formulated by the Ministry that will enable safe commercial usage of drones from December 1, 2018.Though this approach by the government appears to be a beginning for modern technological advancements, there is still many vacuums that is left unfilled, in progressing for an advanced commercial drone technology. This paper attempts to focus on the new Drones Regulations 1.0, its significance, implementation impacts, India's response towards a major policy revolution in juxtaposition with other leading drones regulated nations. The paper will further highlight the loopholes that possibly has become apparent due to its widespread application.

***Keywords*:** Drones, Drones Regulations 1.0, Digital Sky Platform, Remotely Piloted Aircraft System, Unique Identification Number, Unmanned Aircraft Operator Permit, Visual line-of-sight.

1. Introduction

The recent spurt in automation technology advanced with visualization techniques, design specifications and impeccable mapping, makes possible today something that was unimaginable a few years ago. Added to this the ongoing advances, the possible application of drones suddenly appears to be innovative and limitless. Drones or simply, Unmanned Aerial Vehicles (UAVs) is the recent development in robotics technology and has been trending in media of its wide application all over the country. Originally developed and used for military applications, drones are now being employed for commercial photography, survey mapping, surveillance, scientific

study, agriculture and recreational activities. It is very significant to understand the prominent specifics of the Ministry of Civil Aviation on introducing and preparing these drones regulations through a Civil Aviation Requirement; *firstly,* the emergence of the drones regulations has its roots from the rapid evolution of drones related technologies, *secondly,* it was deliberated that other nations have in place a stringent regulation on drones and have been experimenting with its use from recent times, hence, for a country like India, the application of drones seemed sparingly necessary in order to reach the level of competence, *thirdly,* India's security environment demands extra precautions in place. Hence, this new approach by the Ministry of Civil Aviation is surely a laudable result that may prove incredible upshots in the forthcoming future of advanced drones-related technology.

2. Statement of Problem

This paper attempts to focus and seek valuable outcomes on the application and regulation of Unmanned Aerial Vehicles (UAV's) in India. The need for such a regulation in place illustrates the deficient system that was prevailing in the country before its introduction, as significantly, the commercial exploitation of the UAV's took up a rapid turn in terms of its wide unregulated and perilous advancements. The interplay between drones and questions related to the unregulated widespread application of these UAV's needs to be examined against the background of the Drones Regulation 1.0. Despite formulating and introducing this novel regulation, the legal framework on drones appears to be incomplete and inefficient in terms of laying proper standards for safety and quality purposes, privacy infringements and unwarranted operations. A comparative analysis of the legal regime on drones and their operation existing in other nations and in India would prudently demarcate the loopholes, towards achieving a considerable environment in flying the UAV's.

3. Literature Review

1. Rabindra and Shweta Dwivedi, "Flying Drones in India Legal from December 1, 2018! Indian Aviation Ministry Unveils the National Drone Policy, 2018", (2018) PL (CL) October 70

The authors in this paper examines the new drone regulation 1.0 along with its features as proposed and released by the Ministry of Civil Aviation, Government of India. The paper is comprehensive and details out each and every specifics about the new regulation in place. The authors have attempted to carve out all key provisions pertaining to the regulation but has failed to analyze aspects beyond the regulation.

2. Rajesh Vellakkat, "Guidelines on Owning and Operating Drones", (2016) PL (IT) August 92

The author in this paper is a partner at Fox Mandal & Associates, Bangalore. The author has well attempted to provide all necessary details about the use, operation and manufacturing of drones in India. The paper is very comprehensive, focusing on only the guidelines and its significant features. The author has a positive conclusion remarks on the advancement of drone technology in the near future but, the paper has not examined any features or aspects beyond the regulation in place. The presence of an analytical view on the regulation is completely missed.

3. Nishith Desai Associates, "Unravelling the Future Game of Drones. Can they be legitimized?", April 2018

The paper attempts to focus on diverse aspects relating to the regulation and operation of drones in India. The paper argues on the negative implications and all possible traits from the inception of the drone regulation 1.0. The paper addresses the current legal regime scenario in India, following the legal implications, the controversial issues on the usage of these UAS and provides an analogy of relevant drone regulations in other nations. But, the paper has failed to exhibit the implementation impacts of the regulation in India across various sectors.

4. Ananth Padmanabhan, "Civilian Drones and India's Regulatory Response", Carnegie India, March 2017.

The author is a fellow at Carnegie India, based in New Delhi. His primary research focus is technology, regulation and public policy, and the intersection of these three fields within the Indian Context. The paper attempts to focus more on the drone regulation 1.0 and the intersection of drone technology with the legal framework existing in India. The author has categorically specified various subjects dealing with the same issue, providing a glimpse of each and every aspect in an analytical way. The author has tried to portray the work more towards the approach of the government and hence, the paper has failed to give an affirmative response towards the consumer group.

4. Research Methodology

The present study will be a *doctrinal method of research*. Researchers in this research have not used any empirical legal research and for this reason, data analysis is also not used. Moreover, being a doctrinal research, the researchers have employed qualitative analysis of the available resources which includes:

Primary Sources such as:

- Legislations
- Cases
- Reports by Govt. Agencies

Secondary Sources such as:

- Books
- Scholarly Articles

I. Overview Of Drones Regulation And Its Impact In India

V.1 Drone Regulation 1.0

On September 27, 2018, the Ministry of Civil Aviation, Government of India (GOI), released the National Drone Policy, 2018 comprising of: (a) civil aviation requirements (CARs) of civil remotely piloted aircraft systems (RPAS); (b) FAQ's on operation of RPAS; and (c) do's and don'ts for operation of RPAS. This National Drone Policy legalizes the use and operation of RPAS in India, effective from December 1, 2018. The position that prevailed in India before implementing this policy, encountered multiple condemnations from the stakeholders, general public, associations, relative unions etc. towards recurrent commercial operation of these drones, without effective regulation in place to tackle issues of safety, privacy and security concerns. Due to which, the Director General of Civil Aviation (DGCA) banned the operation of drones in the year 2014, until an effective and comprehensive legal compliance comes into motion. Till recently, India did not have any laws relating to the use, manufacture and ownership of the UAVs, until the DGCA through the Ministry of Civil Aviation, announced the proposal of the Drone Regulation 1.0 on 27th September, 2018.

V.1.1 Compliance Procedure And Requirements Under The Drone Regulation 1.0

It is worth noting that the Ministry of Civil Aviation has provided certain specifics on the operation, use and flying of drones in India. These requirements are mandatorily to be complied with, else the consequences for any violations is likely to have greater impact in furtherance of flying drones.

As per the Drone Regulation 1.0, the unmanned aircraft system (UAS) operators have to register with DGCA and get an operator permit to fly the drones. On submission of necessary documents with the DGCA, the operator shall be issued with the Unmanned Aircraft Operator Permit

(UAOP) within 7 working days and such permit shall be valid only for 5 years and is non-transferrable. The regulation categorizes different types of drones, in terms of its weight, that vary from a Nano (weighting less than or equal to 250 grams) to a Large one (weighting more than 150 kg) and therefore, registration of these drones is mandatory before flying them, except those in the Nano category flown below 50 feet and those in the Micro category flown below 200 feet and those owned by the NTRO (National Technical Research Organization), ARC (Aviation Rulemaking Committee) and Central Intelligence Agencies. Further, it has been emphasized in the regulation that the drones cannot be flown more than 400 feet vertically and in certain areas termed as 'NO FLY ZONES" which includes areas near airports, international borders, military installations, Vijay Chowk in Delhi, State Secretariat complex in state capitals, etc. The regulation intends to enable visual line- of- sight for the drone pilots during the daytime and in consequence to this, the air space is partitioned into: Red zone (flying not permitted), Yellow zone (controlled airspace) and Green zone (automatic permission). All RPAS shall be registered and issued with Unique Identification Number (UIN) and the operations of these are to be enabled through Digital Sky Platform, based on NPNT policy ("NO PERMISSON NO TAKE-OFF"). This essentially means that before every flight, drone pilots are required to request permission to fly via a mobile application, which will automatically process the request and grant or reject it. However, if a drone pilot wishes to fly without receiving permission from the Digital Sky Platform, such person may simply be not able to take-off. The guideline further provides that all drone pilots should be above 18 years of age and should have ground training equivalent to that undertaken by an aircrew of a manned aircraft in order to fly the RPAS. These training requirements are however, not applicable for those flying a micro category UAS and those used for recreational purposes. In certain situations, where one wishes to fly the drones above 200 feet in an uncontrolled airspace, such person shall provide a flight plan and obtain necessary clearance from ATS unit. All RPAS operators should have insurance to cover the liabilities in relation to third party damages resulting from an accident.

On violations of any of the provisions or compliances under this Regulation or the Aircraft Act, 1934 or Aircraft Rules or any statutory provisions or under the Indian Penal Code, 1860, shall result in the cancellation/suspension of the UIN or UAOP or statutory penalties as per the governing Act.

V.2. Implementation Impacts of Drones

The advanced commercialization of drones in India have led its way towards the growth and development of many sectors which includes: infrastructure industry, media and entertainment, telecommunication, agriculture, insurance, transport, mining, education, etc. According to a source, the global commercial drone market will grow at a CAGR of between 16% and 17% from 2017 to 2023. The application of drones in various sectors have proved prudent results, in terms of cost effectiveness, time consumption, providing accurate data, etc. and hence, the significance of all such sectors are mounting towards a platform of global economy. For instance:

- In an agriculture sector, the application of drones becomes productive for crop health monitoring, soil health assessment etc.; In cases of urban development, the use of drones becomes operative for city survey, project monitoring, project quality assessment, etc.;
- In the mining sector, the use of the drones seems necessary for mineral scouting, contract monitoring, managing encroachment, etc.;
- In the wake of any disasters, the operation of drones necessitates for search and rescue, delivery of essential goods, real time surveillance, etc.

In view of the above instances, it is pertinent to note that very recently, the High Court of Madras passed an order through a PIL filed by an advocate propagating the usage of Aerial Surveys and drones for awarding of mining, quarrying and other relative activities so as to

prevent illegal mining. The High Court ruled the decision in favour of the petitioner and held that 'employing aerial surveys and drones for detecting activities in the mining sector would facilitate transparency and consequently, save the court time.

Commercialization of UAV technology has come as a breath of fresh air to several industries that have been eagerly waiting to leverage this lucrative prospect since 2014. Added to this the ongoing advancements, the three possible sectors that appears to reveal influential outcomes are: manufacturing industry, starts-ups and education industry in India. *Firstly*, through the Drone Regulation 1.0, the policy will certainly pave way for manufacturing drones in India, under the Government's 'Make in India' scheme. This further, will add advantage to the growth of employment sector and the domestic markets would rise exponentially if drones are manufactured and sold at moderate market rates. *Secondly,* the number of drone start-ups that had been struggling to survive after the blanket ban on drones would escalate promptly. *Thirdly,* the educational institutes providing training for flying drones are expected to attract an influx of interested students so as to reach out, further job opportunities.

II. Loopholes and Issues With the Current Drone Regulation in India

The proposal of a legal regime governing the UAV technology by the DGCA, to be effective from December 1, 2018, was welcomed as a novel approach towards initiating a global platform of comprehensive and advanced drone related technologies. Soon after the inception of the Drone Regulation 1.0, many considered it as a laudable start by the Ministry of Civil Aviation, in striving to take the domestic standards of India at par with other nations, who have already achieved a global recognition on the same. Though one can appreciate the endeavours of the Government of India, in releasing the policy after a blanket ban on the use and operation of drones in 2014, there exists several issues and concerns that are side-lined and completely disregarded. One of the major concerns is the invasion of privacy. The recent judgment by the Hon'ble Supreme Court of India in *K.S. Puttaswamy and Anr. V Union of India and Ors.* has categorically ruled that the 'right to privacy is protected as a fundamental constitutional right under Articles 14, 19 and 21 of the Constitution of India'. Invasion of privacy by flying the drones in an unwarranted place/area is expected to occur frequently. Use of photography or filming technology by drones, may lead to unauthorized breach of privacy rights. The regulation does not seem to mention any provisions for implications on violating somebody's right to privacy and thus, it could be clearly viewed as a deficiency in the current scenario.

The next issue is with respect to data aggregation. Data aggregation refers to the technique of matching different data sets to draw inferences to learn new things and make predictions about the data subjects. Apart from monitoring, the drones are also capable of collecting and linking ample personal data which can be very crucial to an individual's privacy. Post-collection, the aggregation of drone-collected data are further linked to other personal details of an individual such as bank account details, telephone number, biometrics, etc. resulting in a large database of 'Big Data', which may raise several privacy issues.

Another major issue which has not been discussed in the current regulation is about hacking. Drones being employed and operated by the government for maintaining law and order and for patrolling the borders, generally contain sensitive information and is likely to be compromised like every other computer resource. According to a report, drones are not only prone to hacking but are also designed in such a way that it can easily hack down other devices. Recently, a group of researchers at Singapore University of Technology developed a drone which hacked the printers while flying outside the building and sharing the sensitive information directly with the drone. Hence, in the absence of stringent provisions in the regulation ensuring high encryption of data stored in the drones, becomes a crucial point to be addressed.

Yet another issue which requires immediate attention is the potential security hazards in the airspace. Despite the mention of 'No Fly Zones' in the regulation, there seems to exist a lack of

clarity in the segregation of airspaces. The serious repercussions that may possibly ensue are frequent collisions and accidents with the conventional aircrafts due to loss of navigational control and battery failures. The traditional air traffic control system that issues a command to the pilots completely differs with respect to the unmanned aircraft system and the users may readily be not even trained to mitigate the risk of collision. Hence, it is imperative that in order to avoid such hazards, UAVs need to be equipped with ability to detect and avoid other aircrafts while moving through the air. The current regulation lacks the mention of such a provision.

Hence, considering the various issues that are unsettled through this regulation, the current Indian scenario demands a more rigid, comprehensive and stringent guidelines in place to tackle and execute them in a manner that may prove qualitative advances in the near future.

III. Drone Regulations in Other Nations: A Comparative Analysis

Having discussed comprehensively, the legal regime governing the use and operation of drones in India vis-à-vis, the Drone Regulation 1.0 and the drawbacks essentially associated with it, a glimpse of the laws governing the drones in other nations is imperative. The scope of regulations/policies that exists in other nations are as follows:

- Australia: According to Australia's Civil Aviation Safety Authority (CASA), flying a drone is legal, however, there are certain compliances very similar to India's regime that requires to be mandatorily followed. Operating and flying drones weighting under 2kg for commercial reasons and within the standard operating conditions, needs to be notified to the CASA and such drones falls under the 'excluded category. However, operating UAS weighting between 25 and 150kg under similar conditions will require a remote pilot's license. Also, one cannot fly a UAV over and above people and must maintain a distance of at least 30 meters away from the public. There is also a mention of penalty on recording and taking photographs of people without their consent.
- Canada: In Canada, there are two regulatory authorities for two different purposes. The Transport Canada is responsible for regulation of all drones used or recreational purposes and other state purposes, except military operations. On the other hand, for a private use, it is regulated by Special Flight Operations Certificate (SFOC) process. As per SFOC, UAS that weight 35kg or less and are used for recreational purposes, do not require such certificate. However, for UAS weighting more than 35kg, whether used for recreational or any other purposes, requires the certificate. If the operator develops a good track record of successful flights, the authorization is broadened to include larger geographic area, longer validity periods to cover multiple flights.
- China: The Civil Aviation Administration of China (CAAC) regulates and administers the UAS and provides compliance procedures that ought to be followed. The interim provisions apply to UAS with a maximum empty weight of 116 kg or less, or a maximum take-off gross weight of 150 kg or less, and a calibrated air speed of no greater than 100 kilometers per hour. The provisions are also applicable to "plant protection UAS" used for agricultural, landscaping, or forest protection purposes. Flying of drones is permitted only to 120 meters (394 feet) and restricted to be flown anywhere in densely populated areas and other sensitive areas.
- European Union: The EU provides for detailed set of regulations for regulating drones operations. The European Aviation Safety Agency (the 'EASA') in December, 2015 released the following notes titled: "*Introduction of Regulatory Framework for the Operation of Unmanned Aircraft" and "Proposed Concept of Operations for Drones*", with regard to the regulation pertaining to the use and operation of drones. The categorization of UAS based on weight and requirement of a certificate/permit is provided. The classification is threefold: 'open', 'specific' and 'certified' category. The regulation focuses more on licenses and certifications.

Conclusion

The UAS technology equipped in the drones industry has a potential of boosting the economic standards along with attracting global investments. The rise of drone related technologies in India off late, can have deeper and influential impacts in the advancement of economic sector in order to reach at par with the well-developed nations. As outlined in this paper, the current legal scenario in India faces many challenges in diverse aspects, however, there still exists a ray of improvement towards achieving a rigid legal mechanism for the operation of drones in a much regulated and standardized environment. Apart from the Drone Regulation 1.0, the Government of India, has initiated the planning of releasing an advanced version of the existing regulation which shall take into consideration those features that have not been previously discussed and illustrated. The Drone Regulation 2.0 is expected to be released in the near future under the chairmanship of the Minster of State, Mr. Jayant Sinha, who shall prepare the draft recommendations. For India to transcend in an efficient manner to the next wave in the UAS technology, it is necessary to ensure that the DGCA's role in the deployment of drone technology becomes more facilitative and co-operative as opposed to the current obtrusive stance.

References

i. DBTA, n.d. *Trends and application*. [Online] Available at: http://www.dbta.com/Editorial/Trends-and-Applications/What-is-Data-Analysis-and-Data-Mining-73503.aspx

ii. DGCA, n.d.*Report by the Office of the DGCA, "Requirements for Operation of Civil Remotely Piloted Aircraft System (RPAS)"*

iii. EASA, n.d.*Civil drones*. [Online] Available at: https://www.easa.europa.eu/easa-and-you/civil-drones-rpas

iv. Infinium Global Research,n.d.*Commercial Drones Market: Global Industry Analysis, Trends, Market Size and Forecasts to 2023"*

v. Local government, n.d. *Regulation of drones*.[Online] Available at: https://www.loc.gov/law/help/regulation-of-drones/comparative.php

vi. Menon, V.B.R,Govt, V. Govt. of T.N., 2017.*SCC Mad 8791*

vii. Nishithdesai, n.d.U*nravelling the future game of drones*. [Online] Available at: http://www.nishithdesai.com/fileadmin/user_upload/pdfs/Research%20Papers/Unravelling_The_Future_Game_of_Drones.pdf

viii. Ozy, n.d.*The next great threat from hackers*. [Online] Available at: http://www.ozy.com/fast-forward/the-next-great-threat-from-hackers-drones/67660

ix. PIB, n.d.*Newsite*. [Online] Available at: http://pib.nic.in/newsite/PrintRelease. aspx?relid=183093

x. Rabindra and Shweta, 2018.*"Flying Drones in India Legal from December 1, 2018! Indian Aviation Ministry Unveils the National Drone Policy 2018*.PL (CL) October 70

xi. Rajesh V., 2016. *"Guidelines on Owning and Operating Drones'*. PL (IT) August 92

xii. SSRN, n.d. [Online] Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2571490

xiii. UAV Coach, n.d. *Drone laws in Australia*. [Online] Available at: https://uavcoach.com/drone-laws-in-australia/

xiv. UAV Coach, n.d. *Drone Laws in India*. [Online] Available at: https://uavcoach.com/drone-laws-in-india/

xv. Writ, 2012.*Petition (Civil) NO. 494 of 2012*