

INDIA'S DRONE POLICY: THE GOOD, THE BAD, AND THE UGLY

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INTRODUCTION

Human civilization has seen tremendous development in technology in the last century, particularly the last few decades. One hallmark of this development is drones. Drones, or unmanned aerial vehicles, are a legion of modern day technology which are capable of flying; and whose capabilities increase, with reduction in cost, by the day. The main objective was to enable them to be used in warfare, but has now spread to other purposes. Whether remotely controlled or via an application, they have the capability of reaching remote places, hence why they are being incorporated into various sectors. They have multiple purposes, ranging from marine and land wildlife protection, movie productions, disaster response, to search and rescue missions and criminal investigations. UAVs are now installed with a variety of sensor systems such as high-definition and still cameras, lab on molecular sensors to detect hazardous substances, etc.¹ Though drones were developed for military purposes, over the past few years, private companies have also adopted drones to improve business. Amazon and google have spent millions in developing drone system for faster delivery.² As market of drones grows, so do the debates on how to regulate these drones and the issues of their usage. With the increase in the market for drones, governments are trying to include drones in their domestic aviation laws, to prevent casualties and provide accurate information surveillance. Given the large scale purposes and applications of drones, it is crucial that the policies must adhere to the aim of filling the gaps.

¹ Neil Jacobstein, Drones: A 360-degree view, *World Policy Journal* on JSTOR, Volume 30, at <https://www.jstor.org/stable/43290238> (Last accessed 28th January 2019, 9:00PM)

² Gretchen West, Drone On: The Sky's the Limit—If the FAA Will Get Out of the Way, *Foreign Affairs* on JSTOR, Volume 94, at <https://www.jstor.org/stable/24483667>, (28th January 2019, 9:20PM)

LEGAL REGIME GOVERNING DRONES IN INDIA

Globally, drones are used for security monitoring, checking borders, surveillance, and storm tracking. The surveillance function of drones, raises some serious concerns about infringement of privacy and data privacy. The law has not quite caught up with drones because the legal issues of privacy and trespass. The proposed bill seems to aim at regulating just the operations, but fails to adequately deal with the liability and import control. Aviation minister, Suresh Prabhu expects the drone market to touch one trillion dollars, which would boost the 'Make in India' campaign. With this drone policy, India is expected to become a large market of drones³. India, therefore, has to regulate the manufacture, sale, import, export and use of drones, which the Swedish policy aims at doing. India, has adopted similar grounds of licence, registration of the UAV, restricted zones, visual line of sight and insurance, for its drone policy. Directorate General of Civil Aviation has announced draft drone regulations on the use of Remotely Piloted Aircraft Systems, or Drones, in August 2018.⁴ The policy provides the legal sanction for the use and operations of drones in India, set to come into force from 1st December, 2018. The guidelines have categorised the drones under five categories⁵ - nano (250 grams or less), micro (250grams to 2 kilograms), small (2 kilograms to 25 kilograms), medium (25 kilograms to 150 kilograms), and large (greater than 150 kilograms). It is mandatory to register the drones over 2 kilograms in weight. It was also laid down that the drones are to be flown within the visual line of sight (VLOS) only. Jayant Sinha, chairman of the Drone Task Force, has commented that they are working on the second policy to allow drones to be operated beyond line of sight⁶, and regulate the certification of safety and control, the operation of the drone, airspace management through automated operations, are a few to name.

³ J Vignesh, with new government policy, a big opportunity awaits Indian drone industry, Economic Times, (August 31, 2018), at <https://economictimes.indiatimes.com/industry/transportation/airlines/-aviation/with-new-government-policy-a-big-opportunity-awaits-indian-drone-industry/articleshow/65616276.cms>

⁴ Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>, (Last accessed 29th January 2019,5:00AM)

⁵ §3, Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>

⁶ Mihir Mishra, Government allows commercial operation of drones from December, The Economic Times, (27 August 2018), at <https://economictimes.indiatimes.com/industry/transportation/airlines/-aviation/government-allows-commercial-operation-of-drones-from-december/articleshow/65565026.cms>

ANALYSIS OF THE DRONE GUIDELINES

One of the limitations with the policy is that drones are only allowed to be flown during daytime. This creates problems for industries, because the work does not come to a standstill during the night. The policy has yet not mentioned special licenses to industries for using drones during the night for their industrial purposes, which is a possible solution. The guidelines could adopt the Swedish model of categorization of drones into three categories, with special permits for flying drones in the night⁷.

To satisfy the civil aviation requirements issued under the provisions of Rule 15A and Rule 133A of the Aircraft Rules, 1937, drones are required to be registered and get a Unique Identification Number (UIN), Unmanned Aircraft Operator Permit (UAOP), and must meet other operational requirements⁸. The UAOP subjects the operator to scrutiny, which has been comprehensively dealt with in the policy. The operator has to undergo ground/practical training prior to flying the drone, which is a step to deal with airspace accidents⁹. But there is a need for it be implemented effectively, in order for it be effective in regulation of operation.

The policy also demands a written notice to the local police station prior to flying, except in cases where Nano drones are flown within a height 15 meters¹⁰. But Government agencies in India, are pondering over the application of drones for monitoring traffic and security. Drones were used by the Mumbai Police to conduct surveillance over processions during a major festival¹¹. In such events, should the police notify any authority of them using drones?

The Department of Customs had issued a notification in 2016, which places drones on the list of durable items, thereby making it mandatory to declare these at the airport¹². Though the

⁷ The Swedish Transport Agency' regulations on unmanned aircraft systems, Swedish Transport Agency, at <https://www.transportstyrelsen.se/globalassets/global/luftfart/luftfartyg/the-swedish-uas-regulation-tsfs-2009-88.pdf>, (Last accessed 1 February 2019, 1:30PM)

⁸ Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>

⁹§9.1, Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>

¹⁰§12.7, Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>

¹¹ Thomas Gibbons-Neff, ISIS used an armed drone to kill two Kurdish fighters and wound French troops, report says, The Washington Post, (October 11 2016), at

https://www.washingtonpost.com/news/checkpoint/wp/2016/10/11/isis-used-an-armed-drone-to-kill-two-kurdish-fighters-and-wound-french-troops-report-says/?noredirect=on&utm_term=.58677b1eae68

¹²Notification number 16, Director General of Foreign Trade, available at http://dgft.gov.in/sites/default/files/Notification_No.16_%28English%29.pdf

DCGA mandates applying for licence to import the drones¹³, it does not ensure the quality of the imported as well as, the indigenous drones, raises questions about the legal liability in cases of malfunctioning and resulting in damage. There is also the risks of air accidents in events of malfunction, which poses a threat to life and property¹⁴. Without quality regulations, it does not guarantee the operator of the link between himself, and the unmanned vehicle.

An Air India flight almost collided with a UAV at Leh Airport in 2014¹⁵. The Air Traffic Control (ATC), at Leh, got no information reading the UAV flying in proximity to the runway and undetected on the radars. In another case, a drone was noticed by ATC, flying close to the IGI Airport, unaided by binoculars or any detecting devices. It was later found that the radars did not pick up the UAV, nor did they capture any imaging, though it was well within their range¹⁶. Though the new policy, speaks that drones are not to be flown within 3 kilometres of civil airports, the question of redress mechanism arises when the drone enters the red zone. The guidelines do not regulate the interaction between multiple drones, which becomes a problem with the increase in the number of drones.

The operators of the drones are imposed with the legal liability by the draft DGCA Guidelines. But the requirements under this regulation cannot be always met. Not all operators have the technical expertise to determine the condition of their UAV. It would be unfair to hold the operator liable, in cases of malfunctioning. In cases of vehicular accidents, a third party liability mechanism is used, which has not been addressed in the regulations¹⁷. The 1952 Rome Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, can come into play but only if it is ratified by the signatory member states¹⁸, which India has not.

One purpose of drone is surveillance, which results in a conflict between security and privacy. Drones with camera are not governed by data protection laws, which is a setback for both the

¹³§5, Requirements for Operation of Civil Remotely Piloted Aircraft System, Office of the Director General of Civil Aviation, available at <http://dgca.nic.in/cars/D3X-X1.pdf>

¹⁴Rajeswari Pillai Rajagopalan, Rahul Krishna, Drones: Guidelines, regulations, and policy gaps in India, at <https://www.orfonline.org/research/drones-guidelines-regulations-and-policy-gaps-in-india/>, (Last accessed 30th January 2019, 8:00PM)

¹⁵ Mail Online India, (29 November 2015), at <https://www.dailymail.co.uk/indiahome/indianews/article-3338561/Delhi-Police-stumped-mystery-drone-IGI-Airport.html>,

¹⁶Regina Mihindukulasuriya, Drones: Clipped Wings, (30 January, 2019), at <http://www.businessworld.in/article/Drones-Clipped-Wings/15-05-2017-118167/>

¹⁷ Rajeswari Pillai Rajagopalan, Rahul Krishna, Drones: Guidelines, regulations, and policy gaps in India, at <https://www.orfonline.org/research/drones-guidelines-regulations-and-policy-gaps-in-india/>, (Last accessed 30th January 2019, 7:00AM)

¹⁸ Article 32 of Rome Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, 1952

data protection bill and the drone regulation. The policy vaguely deals with privacy infringement, in contrast to the memorandum published by the former president Barack Obama who published a memorandum, encouraging governmental agencies to look into protecting privacy while allowing drones to operate freely¹⁹. The Latin maxim, Cuius est solum, eius est usque ad coelum et ad inferos²⁰, which means whose is the soil, his it is up to the sky'. Though this cannot be extended to space, but it can be extended to the area over the land, as done in British common law. It is imperative to determine the extent of airspace that the landowner holds for himself, to avoid cases such as *United States v Causby*²¹. Does an individual, over whose property the drone is flying, have the option of tackling with the drone first, before initiating legal proceedings, in cases where the privacy is infringed? There is a very thin line of distinction between lawful operation in navigable airspace and unlawful trespass over private property. In *John David Boggs v. William Meredith*²², shooting down a drone on the grounds of invasion of privacy and harassment, did not amount to an offence, and that the defendant was justified in doing so, to protect his family and property. Consequently, the case was dismissed. The drone law regime in India, does not address the alternate and instinctive mechanisms that the individual in distress can adopt at the very instance. However, the Indian Penal Code of 1860 provides for in-court redressal mechanisms for negligent conduct with respect to machinery²³, act endangering life and personal safety of others²⁴, causing grievous hurt by act endangering life and personal safety of others²⁵

Drones are being developed at a fast pace, which raises security concerns. Tech firms are now working towards arming drones with guns for operation, thereby making weapons. The Tikad drone, developed by Duke Robotics, has been developed to aim and fire bullets at enemies while in air²⁶. But, armed drones have not been restricted to tech companies but to militia

¹⁹ Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems, at <https://obamawhitehouse.archives.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua>, (Last accessed 30th January, 1:30PM)

²⁰ Yehuda Abramovitch, The maxim "cujus est solum ejus usque ad coelum" as applied in aviation, available at <http://www.lawjournal.mcgill.ca/userfiles/other/8509457-abramovitch.pdf>, (Last accessed 1 February 2019, 10:00PM)

²¹ 328 U.S. 256 (66 S.Ct. 1062, 90 L.Ed. 1206)

²² No. 3:16-CV-00006-TBR (W.D. Ky. Mar. 21, 2017)

²³ §287, Indian Penal Code, No. 45 of 1860, INDIA CODE, <https://indiacode.nic.in/>

²⁴ §337, Indian Penal Code, No. 45 of 1860, INDIA CODE, <https://indiacode.nic.in/>

²⁵ §338, Indian Penal Code, No. 45 of 1860, INDIA CODE, <https://indiacode.nic.in/>

²⁶ Mary-Ann Russon, US firm reveals gun-toting drone that can fire in mid-air, BBC, (11 August 2017), at <https://www.bbc.com/news/technology-40901393>

groups as well²⁷, making us reconsider the stance on drone policy, and raise some serious questions about the laws governing them, thereby bring the guidelines to light. The guidelines do not address the drones, which, based on their size can be considered for civilian and military uses. Sweden, on the other hand, incorporates such drones under krigsmateriel (war material), thereby allowing its special regulations to govern such drones, requiring prior approval from the Swedish Inspectorate of Strategic Products²⁸.

The new policy does not address flying drones near prisons, which will raise an alarming issue in the near future. Her Majesty's Prison and Probation Service, United Kingdom, has noted a significant increase in usage of drones to convey items into prisons in England and Wales²⁹, over the past few years. This impacts the safety and security of prisons and detention centres. The Swedish policy does not permit flying drones over restricted airspace, such as airports and prisons, national parks and nuclear power plants³⁰. The next policy should keep in mind, the developments taking places, not just in India, but outside our territories as well.

Another point to consider is if the image captured by the UAV is permissible in court or not? For example, Section 423.005 of Texas' drone law, directly address the illegal capturing of images. Such footage is not admissible in criminal trails, civil actions or administrative proceedings³¹. But courts can use the very same footage to hold the drone operator liable for violating the law on drones of the state. In 2007, the Kenora Police Department in Canada, set a new precedent by capturing images of a crime scene using a UAV, which were admitted as evidence in court during the course of trial, for the very first time³². Looking into the Indian

²⁷ Ulf Laessing, Islamic State uses drones to attack Iraqi army in Mosul: military, Reuters, (25 November 2016), at <https://www.reuters.com/article/us-mideast-crisis-mosul-drones/islamic-state-uses-drones-to-attack-iraqi-army-in-mosul-military-idUSKBN13J22T>

²⁸ Regulation of Drones: Sweden, The Library of Congress 2016, at https://www.loc.gov/law/help/regulation-of-drones/sweden.php#_ftnref69, (Last accessed 1 February 2019, 6:55PM)

²⁹ Taking Flight: The Future of Drones in the UK, Department of Transport of United Kingdom, July 2018, at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729458/taking-flight-the-future-of-drones-in-the-uk.pdf, (Last accessed 1 February 2019, 12:20PM)

³⁰ Appendix 1, Förordning om restriktioner för luftfart inom vissa områden [Regulation on Restrictions on Aircraft in Certain Areas] (SFS 2005:801), at <https://www.notisum.se/rnp/sls/lag/20050801.htm>, (Last accessed 5:15PM)

³¹ Chapter 423, Use of Unmanned Aircraft, Government Code, Title 4: Executive Branch, Subtitle B: Law Enforcement and Public Protection, 2013, at <https://statutes.capitol.texas.gov/Docs/GV/htm/GV.423.htm>

³² Canadian police push limits of civilian UAVs laws, Homeland Security News Wire, 17 February 2011, at <http://www.homelandsecuritynewswire.com/canadian-police-push-limits-civilian-uavs-laws>, (Last accessed 2 February 2019, 5:45PM)

Evidence Act of 1872, images captured by the UAV would fall under illustration (a) of secondary evidence³³, and under admissibility of electronic records³⁴.

When working on a new policy, health and life is also being taken into consideration. Using drones for transportation of organs for transplantation, is a major technological breakthrough. It is necessary for the organ to be shipped as quickly and safely as possible, to maximise the chances of success. A recent experiment performed by the Maryland Medical Centre and Aerospace Engineering department confirmed that drones are up to the task³⁵. The selected DJI M600 Pro shipped the kidney to Baltimore, more than 1600 kilometres away. It was observed that the temperature of the kidney remained stable, and was subjected fewer vibrations when compared to the number it received in a plane. The next step would be transporting it for a live person, if successful, would change the face of organ transplantation. So the next policy of the government must make provisions for such research, and undertake steps to issue special licences to hospitals to employ these methods.

CONCLUSION

There is a need to develop technology to detect drones, to prevent mishaps. Apart from manual detection, methods such as radar sensors must be used. These sensors transmit radio waves and receive reflections from the objects in their path³⁶. These reflections can be used to identify the range, direction, and the altitude of the object. Electro-optic sensors, Infrared sensors and acoustic sensors must also be employed to identify the thermal images and soundwaves of the UAVs for detection. With each sensor having its own advantages and limitations, a possible option is the combination of these sensors, depending on the requirement and geographical area. In cases of breach into the restricted areas, the areas are to be equipped with electronic

³³ §63, Indian Evidence Act, No. 1 of 1872, INDIA CODE, <https://indiacode.nic.in/>

³⁴ §65B, Indian Evidence Act, No. 1 of 1872, INDIA CODE, <https://indiacode.nic.in/>

³⁵Michelle Hampson, Drone delivers human kidney: The organ was flown several kilometres by a drone without incurring damage, IEEE Journal of Translational Engineering in Health and Medicine, Volume 56, Issue 1, at page 7, at <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8594776>, (Last accessed 31 January 2019, 6:15PM)

³⁶Taking Flight: The Future of Drones in the UK, Department of Transport of United Kingdom, July 2018, at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729458/taking-flight-the-future-of-drones-in-the-uk.pdf, (Last accessed 1 February 2019, 12:20PM)

effectors³⁷, which jam wireless telegraphic signals that mimic or overpower commands from the original operator of the UAV. But to implement this, laboratory and field testing has to be undertaken, to determine the efficiency of these counter-drone measures.

While formulating the next policy, the DCGA can take into consideration Sweden's stance on drone laws, where it mandates an override switch to enable the pilot to regain control of the UAV³⁸. Further, the County Administrative Board of Jönköping of Sweden, took into consideration that the public's need for privacy shall outweigh the operator's operation of the drone for commercial purposes of photography³⁹, which is a landmark note on privacy in technology based world. Since the Data Protection Bill 2018, submitted by expert committee chaired by Justice B.N Srikrishna, does not address the data protection or privacy breach due to the imaging by camera mounted drones, there is a lacuna in the legal system which could result in a large scale privacy violation, if left unaddressed.

Though drone technology has multiple advantages, it undermines transparency, accountability and communication, so can there be a trade-off between one's privacy for another's livelihood? With the popular answer being no, it is necessary to address the ethical, legal and regulatory concerns, to keep up with the pace of technological development. The policy lays down the guidelines and regulatory measures, but does not address the breach of personal rights of individuals and the legal liability, which paves way for chaos in the legal system. The present regime, at the first glance, has adopted a version of the "wait and see approach", observing the policies in other countries and the issues in implementation, before introducing it as a domestic law in India. But the present guidelines, through novice, deserves commendation for incorporating drones within its navigable airspace laws and attempting to deal with the regulatory issues. The present regulation can be considered as first of the many more to come.

³⁷Taking Flight: The Future of Drones in the UK, Department of Transport of United Kingdom, July 2018, at pg. 63, at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/729458/taking-flight-the-future-of-drones-in-the-uk.pdf, (Last accessed 1 February 2019, 12:20PM)

³⁸The Swedish Transport Agency's regulations on unmanned aircraft systems, Swedish Transport Agency, at <https://www.transportstyrelsen.se/globalassets/global/luftfart/luftfartyg/the-swedish-uas-regulation-tsfs-2009-88.pdf>, (Last accessed 1 February 2019, 12:30PM)

³⁹Regulation of Drones: Sweden, The Library of Congress 2016, at https://www.loc.gov/law/help/regulation-of-drones/sweden.php#_ftnref69, (Last accessed 1 February 2019, 6:55PM)