

DRONES AND THE RIGHT TO PRIVACY

- *Tanya Saxena**

ABSTRACT

“Through an appraisal of the current state of drone technology and a comparison with the rules that have been adopted in various other jurisdictions around the world, this article considers how our existing laws on recreational users of drones are somewhere clashing with our right to privacy. This article is divided into 5 parts. First part deals with the introduction to the subject of this article- Drone. Then, I have analysed the evolving Indian law regarding the Drone and the major policy gaps therein. Then the third part talks about the most controversial yet an important topic in the contemporary world- the Right to Privacy. I have discussed how this topic is so interwoven with the technology of drones and why we need to take precautions so that the security of the nation and privacy of the citizen is not sacrificed. Part four has the discussion regarding the legal framework pertaining to drones prevalent in various countries of the world so that the readers can compare and analyse that what’s best for them and accordingly the government can direct its resources. Part five concludes the article with certain suggestions that could be beneficial for our country and promotes the sanctity of our constitution and protect our inherent fundamental right to Privacy.”

Key words- Data protection, UAV Security, privacy, Indian Law

I. WHAT IS A DRONE?

An unmanned aerial vehicle (UAV), commonly known as a drone is an aircraft without a human pilot on board. Its flight is either controlled autonomously by computers in the vehicle, or under the remote control of a navigator. There are a wide variety of drone shapes, sizes, configurations and characteristics. Historically, UAVs were simple remotely piloted aircraft but autonomous control is increasingly being employed. The first demonstration of a remotely piloted vehicle took place in May 1898 at the electrical exposition in New York City’s Madison Square Garden. Attitudes of course began evolving during the 20th Century. As early as 1917, the US Navy pursued the development of a pilotless aircraft for use against German boats during the 2nd

World War. Israeli Defence forces used it against the Syrian forces in Lebanon in 1982. But it is only in the last few years that UAV has matured and is now being used to shape the future and countries are deploying it for various other purposes. Whenever a person thinks or hears the word 'drone', they visualise a flying object with four legs coming out of it and it is almost like that. It is like a self-driving car but for planes. People think of it as a new invention but as noted above, drones have always been there but are now making their presence felt with their introduction in the industrial and commercial sphere of life. Their usage is manifold with companies like Amazon announcing to deliver products with the help of drones. But just like any evolution comes with heavy costs, one that we are facing today with the drones is the proliferation of these miniature drones which have the potential to invade into people's lives.

II. LAWS RELATING TO USAGE OF DRONES IN INDIA

Civil Aviation Requirements¹ (CAR) is the set of regulations issued by DGCA to be complied with by all civil remotely piloted aircraft systems, commonly known as drones. All the pilots in controlled and uncontrolled airspaces have to abide by it. The drone regulations categorize drones into five classes. A Unique Identification Number (UIN), which is an equivalent of a number plate, will be required for all drones except for the ones in the Nano category which are being exhaustively used. Nano category drone is Less than or equal to 250 grams. It does not have to obtain No Permission – No Take-off software. The price for this category has been kept at a minimal amount of Rs.1000 which makes it very economical for any layman and thus today we see so many people flying the drones. Also, the whole portal made for registration has facilitated in easy access to drones.

Let's talk about the loopholes of these guidelines-

- **MAJOR TECHNOLOGICAL DEVELOPMENTS LEFT UNADDRESSED-** Some Areas such as privacy and trespass, which require a larger legal debate, have been left entirely unaddressed by the DGCA in its guidelines. The guidelines appear short-sighted and do not attempt to predict or account for the rapid developments brought to the drones' domain by Artificial Intelligence, miniaturisation and robotics.

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¹ *The Drone Regulations*, <http://dgca.nic.in/cars/D3X-X1.pdf>

- **SECURITY ISSUES HAVE NOT BEEN ADDRESSED-** These regulations have also not answered the security questions like-what would happen when two UAVs might collide with each other. What about the loss of life and property that might result from any accident between two drones? These questions need to be answered before the drones are launched fully into the civilian sector.
- **WHAT ABOUT THE SAFETY CONCERNS OF THE DRONES-** The guidelines do not account for a mechanism ensuring the safe operation of drones at low altitudes. As the number of drones populating Indian skies rapidly increases, this gap will become alarmingly glaring in the future and will have to be addressed soon.

However, a very appreciable step has been taken by the DGCA in these guidelines of 2017- They have drastically reduced the no-fly zone area around Rashtrapati Bhavan, New Delhi, from 30 km in the 2016 guidelines to 5 km in the 2017 issuance. The radius of the no-fly zones around strategic locations as prescribed by the MHA as well as military installations has been reduced to 500 metres. Certain other legislations like The Information Technology Act, 2005 would also have to be amended. Some provision with respect to drone needs to be incorporated in it. As we frame any law, we have to be prepared for all kind of consequences which might follow. For example, recently UAVs bearing Hanuman idols flew over the city of Bhopal for a considerable amount of time without provoking a reaction from the police.² The incident was not only a safety hazard but could also have sparked off religious tensions. Whenever we talk about liberty then the issue in a country like India does envelope the religious aspect as well. The authorities as well as the legislation have to work in a very well defined and coordinated manner. A very specific and comprehensive framework is need in the legislations for the drones to function smoothly and be efficient with their purpose.

III. RIGHT TO PRIVACY

Drones are everywhere. You attend a marriage function, you go to some tourist place, you are there to watch a movie or are at a concert, at some amusement park or it could simply be you relaxing inside your house or at the parking lot. This is the starting of an era which will be ruled by drones. Today, people around us get happy when they see a camera flying over their head and

² “*Who allowed Hanuman drones to hover over city,*” THE TIMES OF INDIA, (Sep.19, 2016)

elders start telling the children to look up and wave. People are innocent and they do not realise the harm that these drone might just be causing to their personal space and their personal choices. In a country like India where the literacy rate isn't very pleasing, people need to know about their rights and the ways to protect themselves. People living in the countryside always get enthusiastic if they ever see people capturing their images or if they see them shooting a video of their village. They are fascinated by all these objects. It's not their fault because it's the exposure that plays the game. But with the government having given a nod to the new Aviation Guidelines to fly the drones, they have taken up a huge task and they have to abide by their duties. However, at least in the United States the judiciary is taking a dim view of just how drone surveillance technologies are being used to invade the privacy of individuals. While the legalisation of drones in India will, in all likelihood, have a largely positive impact on the technological ecosystem of the country, it is important to note that, in the past, and drones have been viewed as a security threat. Without proper implementation and supervision, drones may pose a safety threat, and may lead to air collisions and accidents. If a large number of authorised drones are being operated in an area, it may be relatively easy for an unauthorised drone, to enter that space. Due to this threat, it is understandable that one of the penalties prescribed by the Drone Regulations is an action under the Indian Penal Code. We need a better privacy law because it is deemed necessary to ensure that data is not retained indefinitely, not shared and disclosed to unauthorised third parties and that the unauthorised parties do not have access to collected and intercepted data. In a democratic regime, surveillance should be targeted and carried out under a judicial warrant and the absence of privacy legislation deprives individuals from necessary safeguards³.

Amazon has announced in 2017 that it will be using a fleet of Amazon Prime Drones to deliver the object to the customer in a shorter period of time⁴. At first this thought of getting the object delivered to us in 30 minutes seems appealing but the truth is that this could lead to loss of so much of the customer's personal information. We have our email ids, mobile number, address and what not registered with the website and if by any chance, these drones are hacked which has a good chance of happening, then it could lead to a cyber-attack which has been discussed in detail below.

³Richard Stallman, "How Much Surveillance Can Democracy Withstand?", WIRED, (Oct. 14, 2013), <http://www.wired.com/opinion/2013/10/a-necessary-evil-what-it-takes-for-democracy-to-survivesurveillance/html>

⁴Mike Murphy, "Amazon wants to use its new drones to deliver your packages—as long as you have a big lawn," QUARTZ, (Nov. 30, 2015).

Another aspect that comes with the introduction of Drones in the commercial area, especially if the delivery system of these e-commerce websites gets equipped with drones is that large no. of people will lose their job. One of the many good impacts of these e-commerce websites has been an upsurge in employment but with the coming of drones, of course people will lose job. This has to be monitored. A person would definitely be operating the drone but then for that he'd have to have the prerequisite skills for flying the drone as specified by the aviation ministry and no random person can be chosen for this work.

In addition to being used for capturing footage, drone competition is also gaining in popularity. According to a recent article on CNBC, there was a drone competition with the winning prize of \$10,000. These large prize shows just how big of a deal drones are becoming in the recreational world. This reflects the overall fight between personal drone use and other authoritative figures. Recently, a man who was sun-bathing on a turbine⁵ was caught on the drone and naturally this infuriated him because who would appreciate a drone flying over you while you try to have a moment of solitude. Several other incidents of this kind have been reported- be it drones being flown near airports⁶, being flown near restricted government infrastructure⁷, interfering with emergency responders⁸, delivering drugs to criminals⁹, crashing into unsuspecting crowds in high-profile events¹⁰, being destroyed by vigilante home-owners¹¹, being used to mount weapons¹² or being targeted for use by terrorist groups¹³. Another similar case happened when a man in New Jersey shot down a drone that was spying on his sixteen year old daughter sunbathing. The court declared this man innocent of the charges. The judge declared that two human witnesses saw the drone below the tree line. This evidence indicated that this was an invasion of the man's privacy and that the man who shot it down was acting within his constitutional rights¹⁴. Drones should not be used for any immoral purposes but with the advent

⁵No privacy left in the world: Drone finds man sunbathing atop wind turbine, (Aug. 29, 2015), <https://www.rt.com/usa/313771-drone-sunbather-wind-turbine/>

⁶Steven Swinford, "Drone Believed to Have Hit British Airways Flight 'May Have Been a Plastic Bag'", THE TELEGRAPH, (April 21, 2016)

⁷Bart Jansen, "Small Drone Crashes Near White House Despite Ban Against Flights in DC" USA TODAY (Oct. 9, 2015)

⁸Dave Lee, "Drone Industry Delight at New US Rules" BBC NEWS (June 22, 2016).

⁹Jack Nicas, "Criminals, Terrorists Find Uses for Drones, Raising Concerns", THE WALL STREET JOURNAL (Jan. 28, 2015).

¹⁰Kevin Rawlinson, "Man Comes Forward After Woman Knocked Out by Drone" BBC NEWS (July 1, 2015).

¹¹Michael Archambault, "Man Wins Lawsuit Against Neighbour Who Shot Down Drone with shotgun" PETA PIXEL, (June 29, 2015).

¹²Alex Lockie, "An 18-year-old Mounted a Gun to a Drone and Fired Shots in the Middle of the Woods" BUSINESS INSIDER (July 22, 2015).

¹³Ian Johnston, "Terrorists Could Use Drone Bombs to Attack Nuclear Power Stations, Experts Warn" INDEPENDENT (Jan. 11, 2016).

¹⁴Judge rules man had right to shoot down drone over his house, (Oct. 28, 2015), <https://www.cnet.com/news/judge-rules-man-had-right-to-shoot-down-drone-over-his-house/>

of any technology, the negatives are sure to come. These incidents have given birth to the practise of - *'Drone Stalking'* which has been shortly discussed later:

3.1- Drone Stalking

Whether you are taking a bus or a cab, travelling via shorter route or a longer one, what do you like to do before you leave your house for work and what do you do after you return from your work? All the answers can now be answered and this has been made possible because Drones are now easily accessible. A very exhaustive paradigm is required in order to deal with this issue.

Using drones to stalk people is of concern from a social and ethical perspective because it lays down the base for this whole concept of aerial photography and video-mapping and what not. It is a craze in recent times to have a drone and it makes you look cooler than others but this should enjoyment should not come at the cost of violating somebody else's right to life and privacy. In the Indian context, after the Hon'ble Supreme Court's recent ruling in K. Puttaswamy Case¹⁵, Privacy has been declared to be an essential fundamental right and hence, it cannot be violated and if it is then heavy consequences must follow. Right now the only legal recourse that a person might have is to file a writ petition alleging violation of Article 21- Right to Life as envisaged in our constitution. Hence, legal framework is required so that we know the appropriate way to deal with such problems.

Technologies like drones and cell signal triangulation can be used to violate spatial privacy, SC recognises:

"Technological change has given rise to concerns that were not present seven decades ago (when the Constitution was first framed). Accordingly, the key takeaway is that as technology evolves the scope of the right to privacy and legislative protections against new intrusions will also have to be progressing¹⁶".

A loitering drone can be used to record sound from a room even at normal conversational levels. It can also be used as a network jammer to block wireless communication in an area. Given the strides in reducing drones to the size of a small bird, overhearing any private

¹⁵ Justice K.S. Puttaswamy v. UOI (AIR 2017 SC 4161)

¹⁶ *A phenomenal verdict and its effects*, (Dec. 25, 2017), <https://economictimes.indiatimes.com/news/politics-and-nation/a-phenomenal-verdict-its-effects/articleshow/60215411.cms?from=mdr>

conversation would be a piece of cake. Imagine if our enemy nation employs somebody or with the technology advancing so rapidly; you wouldn't be surprised if they send a drone here and control it sitting inside their office. They can easily get access to our military plans or even click pictures of strategically important documents.

3.2- Cyber Attack

It is rapidly becoming the age of surveillance and the threat to privacy if not impossible but is becoming a tough menace that needs to be regulated. These cyber-attacks can be classified into three categories attacks that compromise data¹⁷-

1) Confidentiality- In this attack, the adversary gets unauthorized access to confidential information by intercepting the sensor data. Attacks under this category can be either passive or active. In a passive attack, the malicious actor can eavesdrop on communication links between the UAV and Glasgow Coma Scale. In an active attack the adversary intercepts the signal and forwards the data to another unauthorized entity. This can be done for monetary gain; the data can be sold on the black market for example.

2) Integrity- This type of attack is achieved by either modifying the data being sent or by fabricating malicious data to replace the legitimate data. There are 2 prominent ways to compromise the integrity of the data communication of a UAV; Sensor replay attack and replacing authentic sensory data with bogus data (spoofing).

3) Availability- Attacks that compromise the availability of sensor data in UAVs can be achieved in two ways; namely through controlling the UAV or communication interruption. In the first method of attack, the attacker compromises the UAV or the GCS. The attacker is able to gain control of the UAV and modify the functionality of its components.

In the second method of attack that compromises the availability of the system, the attackers interrupt the communication link between the UAV and the GCS. This can be done in different ways, most prominently through jamming and GPS spoofing. Hijacking of drones is doable considering the technology behind commercial drones and how they are being controlled from the ground. In accordance with the DHS report¹⁸, commercial drones can thus be vulnerable to exploitation since they communicate with their operators using unencrypted means such as

¹⁷Hadjer Benkraouda, Ezedin Barka and Khaled Shuaib, *Cyber-Attacks On The Data Communication Of Drones Monitoring Critical Infrastructure*, <https://airccj.org/CSCP/vol8/csit89708.pdf>

¹⁸CYBER-SECURITY RISKS POSED BY UNMANNED AIRCRAFT SYSTEMS

radio, Wi-Fi or GPS. This can allow a malicious actor to intercept and review data sent to and from the drone. Researchers are afraid that drones can penetrate into the secure critical infrastructure, such as nuclear facilities, in its recent report¹⁹. Their research is based on security incidents in France where drones flew over the restricted airspace which contained 13 nuclear power plants.

If we keep on finding out the negatives then surely there's no end to it because human beings ought to be good at that. But we must also unravel the beauty of these instruments and try to understand why, if some people are enjoying or justifying its usage then is there any objective that these drones might help us to accomplish? Are they making our lives simple, in any way? If, then the legislators must be abreast of these factors.

The answer to this is- Yes. Indeed, drones have brought in a metamorphosis to how we looked at things and our perspective has changed, it has brought in a wave of possibilities. I'd like to discuss some of them-

1) Disaster Management- The logistics of emergency response are often muddled by physical factors. It's never easy to search for survivors in cases like flooding, wildfires, or nuclear fallout, particularly because these types of emergency situations require aid workers to put their own lives at risk. Adoption of drone technology could substantially help solve this problem. Drones can be built to withstand extreme temperatures and radiation, plus aerial cameras can provide better perspectives when searching for victims in areas of low visibility or lots of debris. They can also be used to deliver medicine, vaccines, and care packages to people from a distance. In fact, a team led by George Barbastath²⁰ is currently developing a smartphone-deployed drone that can be operated by healthcare workers.

2) Natural Science & Research- The chief advantage of drones is their manoeuvrability. They can easily move into different places and get back with clear pictures. An example to demonstrate this usage would be what happened with a photographer recently in Canada²¹. He

¹⁹Alexander Solodov, *Analyzing the threat of unmanned aerial vehicles (UAV) to nuclear facilities*, (April 2017), https://www.researchgate.net/publication/316218661_Analyzing_the_threat_of_unmanned_aerial_vehicles_UAV_to_nuclear_facilities

²⁰*Optimizing Immunization Systems: Delivering Vaccines with Unmanned Aerial Vehicles*, (Dec. 28, 2013), <http://educate-yourself.org/cn/gatesvaccinedrones28dec13.shtml>

²¹*Drone captures stunning pool hidden inside an iceberg*, (June 6, 2019), <https://www.hindustantimes.com/it-s-viral/drone-captures-stunning-pool-hidden-inside-an-iceberg/story-jvrvAcw3OjV28Mi9monBtL.html>

saw this incredible natural pool formed inside an iceberg and sent his drone over the place to capture its magnificence. This is just a banal example of how drones are being used but if we talk on a global level then drones are being designed which could go out into the space²², survive the temperatures and come back to the Earth successfully.

3) Navigation- All drones contain the same basic group of components: motors, electronic speed controllers (ESC) and a flight controller, a sensor block, a GPS unit, remote control radio receiver, and a rechargeable battery. Navigation can be performed remotely or programmed using ground station software to instruct the device to find an optimum route to a set destination.

4) Advertisements and Deliveries- Russia has recently experimented with this, where an Asian restaurant employed drones for marketing purposes²³. These drones, which were equipped with advertisement fliers, were flown around the city of Moscow and displayed their ads to office workers just before lunch hour. People were fascinated and ordered things. This proved to be a success for the company as well as the customers. This has also received a term from the netizens- Drone-vertising.

5) The High Court of Uttarakhand in *Arun Kumar Bhadoria vs. State and Ors.* laid down in a judgement that- “Drones/UAVs are law enforcement's eyes-in-the sky. They can perform surveillance and other tasks that police officers manually cannot. They can provide real-time information about crimes and dangerous situations as they unfold. This can help the police better plan and deploy their resources. Drones/UAVs can also capture video images of crimes and law and order situations to provide crucial evidence in future court proceedings²⁴”.

6) Crop Mapping- the Report of the Committee on Medium-term Path on Financial Inclusion has recommended that drones and dove, micro satellites could also be deployed to assess crop damages. This will reduce the number of crop-cutting experiments required and will

²²NASA Drone to Probe Ozone Loss, (Jan. 10, 2013), <https://www.livescience.com/26161-nasa-drones-ozone-study.html>

²³Noodle Company Uses Drone Advertising for Airborne Promotion, (Nov. 8, 2013), <https://www.psfk.com/2014/08/advertising-drone-wokkers-food-campaign-airborne.html>

²⁴Arun Kumar Bhadoria vs. State and Ors. (15.05.2018 - UCHC) : MANU/UC/0583/2018

ensure faster claims settlements²⁵. There are some recommendations which the legislators could incorporate in any of the forthcoming legislations related to drones-

- A more precise distance should be mentioned for a person to exercise his airspace rights. They should exercise a property- rights approach so that the judiciary is not burdened with these long lasting suits. Even beyond that airspace, it should be very clearly mentioned by the authorities that capturing or recording what all things could make you liable for trespassing or violating the dweller's personal rights.
- The government should very strictly check the license of all the drone-flyers and could limit their flying hours. Specifying that in what hours, the drones cannot function will be of great help.
- The stored data gathered by the government should not be easily accessible. Only with a reasonable cause, should you be able to get access to it.
- For any security reasons, surveillance by the law enforcement agencies should only be allowed after they have a warrant issued.
- In all such cases of drones stepping into a person's life, it's majorly going to be a public policy decision. The authorities will have to stand on the pedestal of morality and adjudge the issues because this law is in a very incipient stage and only the government and the judiciary can bring in some clarity and reduce the uncertainties.

IV. COMPARATIVE STUDY OF LAWS RELATING TO DRONES IN DIFFERENT COUNTRIES

In every state where legislation has been passed, the new laws are focused on the technology (drones) not the harm (pervasive surveillance) and this approach creates perverse results. States might give different reasons for employing drones in the administrative wing but the truth is that the term "unmanned aircraft" is misleading as there are no systems currently available to law enforcement that can conduct fully autonomous operations, all systems need an operator for part of the mission. Thus, no way does this save any cost of the government. Privacy is a

²⁵Report of the Committee on Medium-term Path on Financial Inclusion, December 2015
<https://www.manupatrafast.com/pers/Personalized.aspx>

concern for many and so should it be for our government to serve us better because drones have all the potential required to intrude into our lives in the near future²⁶.

a) New Zealand- New Zealand introduced new rules pertaining to unmanned aerial vehicles (UAVs) in 2015²⁷. These rules are intended to be an interim approach to regulating unmanned aircraft and to be generally permissive in nature. The regulations are directed towards protection of citizens' security and not invade into their private affairs. This is a valuable change made to the already existing laws.

b) Australia- According to Australia's national aviation authority, Australia's Civil Aviation Safety Authority (CASA), flying a drone is legal in Australia, as long as there is compliance with the general rules laid down by the authority. The rules are praise worthy because they prohibit us from flying drones over beaches, parks or any other public amusement area because that could seriously violate one's personal space. Australia being another common-law country, its model could be adapted for India effectively.

c) USA- According to the U.S. national aviation authority, the U.S. Federal Aviation Authority (FAA), flying a drone is legal in the U.S. and an advisory regulation has also been issued which lays down the rules which act as an Exception for Limited Recreational Operations of Unmanned Aircraft.

d) United Kingdom- In the UK, drones cannot be flown within 50m of people, vehicles, buildings or structures (though this only appears to apply to drones fitted with cameras - which means the concern goes beyond safety but includes privacy as well); further, drones cannot be flown over congested areas or large gatherings such as concerts and sports events²⁸.

e) Honk Kong- In Hong Kong, drones also cannot be flown over or within 50m of any person, vessel, vehicle or structure not under the control of the pilot; however, for take-off and landing,

²⁶Mary Miss Coane, "The Rise of Domestic Drones", RADIO TIMES, <http://why.org/cms/radiotimes/2014/08/25/the-rise-of-domestic-drones/>

²⁷Kelly Buchanan, *New Zealand: New Rules on Drones Come into Effect*, GLOBAL LEGAL MONITOR (July 31, 2015), <http://www.loc.gov/law/foreign-news/article/new-zealand-new-rules-on-drones-come-into-effect>. UAVs are also referred to as remotely piloted aircraft systems (RPAS), unmanned aerial systems (UAS), "drones," and model aircraft.

²⁸"The Drone code", CIVIL AVIATION AUTHORITY, <https://www.caa.co.uk/Consumers/Model-aircraft-and-drones/The-Dronecode/>

the limit is relaxed to 30m (but this limit does not apply to the pilot - the law sensibly recognises that the pilot needs to be close to the drone when it takes off and lands²⁹).

f) Singapore- Singapore has issued certain guidelines for these noble unmanned vehicles but still there is a lot of ambiguity with respect to the privacy of the citizens and the regulatory framework is not that satisfying³⁰.

AIRSPACE RIGHTS- This discussion brings into focus the Air Space law as well. Both the drone Legislations and the Air Space law have to be construed harmoniously. To understand this emergent legal issue, it's necessary to understand the unsettled nature of landowner's rights in low-altitude airspace because that's where his personal space begins. In the 1946 case *United States v. Causby*³¹, the Supreme Court analysed the *ad coelum* doctrine³². That doctrine had its roots in common law jurisprudence dating back centuries to Cino da Pistoia's declaration "*Cujus est solum, ejus est usque ad coelum*" which means "[to] whomsoever the soil belongs, he owns also to the sky³³". This doctrine declared the land owners to have an indefinite stretch of airspace starting from their rooftop to the outer space but this is not true in the current scenario with so many hoardings, planes and satellites coming into existence. Rather, a landowner owned "at least as much of the space above the ground as he can occupy or use in connection with the land".³⁴ If the government or any other party intrudes into that space, such intrusions should be treated "in the same category as invasions of the surface."³⁵ Such intrusions could then lead to disputed cases of privacy and here comes the drones which if not regulated, could fly into anybody's home or even balcony and that would amount to violation the resident's airspace rights.

V. CONCLUSION

In the technological race to produce the seasons must - have technological toy, drone manufacturers may have simply lost sight of the privacy implications that are packaged with their products. Drones can be hacked easily – and the tools required to perform that hacking are

²⁹"Operations of Unmanned Aircraft Systems (UAS)", CIVIL AVIATION DEPARTMENT, <http://www.cad.gov.hk/english/Unmanned_Aircraft_Systems.html>

³⁰"Fly it safe", CIVIL AVIATION AUTHORITY OF SINGAPORE, <<http://www.caas.gov.sg/caasWeb2010/export/sites/caas/en/ANS/unmanned-aircraft.html>>

³¹ *United states v. Causby*, 2328 U.S. 256, (1946)

³² *Id.*

³³12, Troy A. Rule, *Airspace in an Age of Drones*, BOSTON UNIVERSITY LAW REVIEW, 95 (2015).

³⁴ 328 U.S. 256, 264

³⁵ *Id.* at 265

becoming ever more easily accessible. We cannot overlook the fact that how these drones have helped us discover some unseen parts of Mother Nature.

This off the shelf functionality may come at a cost – and one that is hidden. We all are aware of this precarious situation but we have failed to act over it and this could open up the floodgates. Privacy and technological development can't be kept in water tight compartments. They eventually do share a common space and it's for the government to decide that where does the entry stop and doesn't decay the civic life.

It's normal for us to expect a reasonable amount of privacy from the Surveillance activities that are a consequence of Drone Legalisation. Operators flying UAVs over 200 feet above the ground level also need to obtain an unmanned aircraft operator permit (UAOP) from the DGCA. This permit does put the operator under stringent scrutiny. But it is one of the segments in the guidelines that is quite comprehensive and effective if implemented effectively. Many of these debates highlight an underlying issue that drones will inevitably capture a vast spectrum of data during their operation. This simple cannot be prevented if they are to function effectively. Therefore, here the concept of: "reasonable breach of privacy" becomes relevant. Privacy can be respected or breached based on how the data is processed or examined. Therefore, a culture of privacy must be given when Indian law enforcement agencies use drones to conduct surveillance and engage in similar operations. It is important to absorb the positive aspect of these devices but at the same time it should not compromise with the privacy of the individuals. We must be bound by the Necessary and Proportionate principles of Legality, which says that the existing laws should be reviewed on a periodic basis³⁶.

Progress happens when the community pools in their trust and walks down the road of change. While drones have been used in abominable ways (e.g. missile strikes and privacy breaches), we discussed the positive aspects of them as well as those which corroborate the fact that drones aren't inherently bad or dangerous. If we can direct drone development in a productive direction, the benefits may be more than worth it.

³⁶"International Principles on the Application of Human Rights to Communications Surveillance", *Necessary & Proportionate*, 10 July 2013, <https://www EFF.org/files/necessaryandproportionatefinal.pdf>