

## CIVIL APPLICATION OF DRONES: A STUDY OF DRONE LAW

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A "drone" is simply an aircraft that can fly without a human operator. They are sometimes referred to as unmanned aerial vehicles (UAV), and the whole system including the aircraft, the operator on the ground, and the digital network required to fly the aircraft is referred to as an unmanned aircraft system (UAS).<sup>2</sup>The integration of drones into the skies is expected by many to yield significant commercial and societal benefits. Drones could be employed to inspect pipelines, survey crops, and monitor the weather. One newspaper has already used a drone to survey storm damage, and real estate agents have used them to survey property.<sup>3</sup>

Drones are used around the world for various purposes, such usage is continuously increasing due to the accessibility of drones, ease of operation and effectiveness of the drone technology itself. While most of the drones are remotely piloted by persons on the ground, some drones although being used for civilian purposes can be complex and guided by pre-determined coordinates. Drones have been widely accepted by various industries as the application of drone is noted to increase work efficiency and productivity, decreasing work workload and production costs, improving accuracy, refining service. It is also essential to note that the civil application of drone had increased many folds due to their capability of reaching remote locations in no time, which saves human effort and human labour required for the same. Civil application of drones has presented many regulatory challenges before the jurisdictions around the world. Such challenges include the need to ensure that drones are operated safely, without harming public and national security, and in a way that would protect areas of national, historical, or natural importance. A variety of the countries surveyed in this report have also made efforts to address concerns regarding the property and privacy rights of landowners or other persons impacted by the operation of drones.<sup>4</sup>

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<sup>2</sup> BART ELIAS, *Pilotless Drones: Background and Considerations for Congress Regarding Unmanned Aircraft Operations in the National Airspace System*, CRS Report (2018).

<sup>3</sup> <http://www.forbes.com/sites/kashmirhill/2011/08/02/faa-looks-intonews-corps-daily-drone-raising-questions-about-who-gets-to-fly-drones-in-the-u-s/> accessed on 16 April 2020.

<sup>4</sup> RUTH LEVUSH, *Regulation of Drone*, Global Legal Research Center (2016).

Legislators around the world are working to enact legislation to ensure responsible use of drones. Some countries have adopted legislation or implemented temporary provisions on civil application of drones, whereas in most countries legislative proposals are currently being considered.

#### CIVIL APPLICATION OF DRONES

There can be multiple civil uses of drone technology, some persons are interested in use of privately owned drones as a hobby whereas corporations have commercial interests. Some of the purposes for which drones are being used are aerial photography, security assistance, emergency response, medical response, disaster management, delivery of goods, monitoring crops and harvest etc. While many companies seek to use drones for the following purposes:

- i. **Oil and Energy Companies:** Oil companies operating out of Alaska sought FAA permission to use commercial drones for the purpose of detecting pipeline leaks and to inspect offshore facilities. Permission was granted by FAA to two oil companies for the same purpose.
- ii. **Agriculture:** Many farmers, already using drone technology to assist them in crop harvest argue that drones could revolutionize the industry, creating more efficient farms. They could use these devices to survey their fields to find crop damage and see if there is too much water in one area, or not enough fertilizer in another spot. Ranchers could also use drones to see where cattle are grazing or find a lost sheep, rather than covering thousands of acres on horseback. Eventually, farmers may even be able to use drones to spray fields with anything from water to pesticides.<sup>5</sup>
- iii. **E-commerce:** Various online retailers have expressed willingness and conducted trials using drones to deliver packages. 'Amazon Prime Air' is a drone delivery service currently in development by Amazon. The service uses delivery drones to autonomously fly individual packages to customers within 30 minutes of ordering. To qualify for 30-minute delivery, the order must be less than 5 pounds, must be small enough to fit in the cargo box that the craft will carry, and must have a delivery location within a 10-mile (16 km) radius of a participating Amazon order fulfillment center.<sup>6</sup> For such a concept to be

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<sup>5</sup> <https://thehill.com/regulation/221788-eight-industries-that-want-to-fly-drones> accessed on 17 April 2020.

<sup>6</sup> "Amazon Unveils Futuristic Plan: Delivery by Drone". CBS News 1 December (2013).

safe and operated responsibly the congress asked FAA to frame guidelines for "safe integration of civil unmanned aircraft systems into the national airspace system."<sup>7</sup>

- iv. **Sports:** The use of drones in sports coverage is rapidly expanding. Drones were used to help cover the 2014 Winter Olympics in Sochi . The drones were used in the snowboarding and skiing events. Drones are often used to give bird eye views in sports events.

### REGULATING CIVIL APPLICATION OF DRONES

#### **A. India**

*"Today we start an exciting new chapter in India's aviation history by allowing commercial use of drones. I am sure that many new and exciting applications will emerge that will propel India's economy forward. Our progressive regulations will encourage a vast Made in India drone industry."* - Minister of Civil Aviation, Suresh Prabhu<sup>8</sup>

The first drone regulatory framework was issued by the Directorate General of Civil Aviation in 2018 by introducing Civil Aviation Requirements, Section 3 – Air Transport Series X, Part I, Issue I, also referred to as the Drone Regulation. By virtue of this legislation the use of drones was legalized in India. The government of India aims towards enabling autonomous operations of drones without compromising safety, security or privacy of citizens.

Drones which are used for civil applications have been divided into multiple categories, which will further enable to legislators to ensure effective regulation of drones.<sup>9</sup>

- i. Nano: Less than or equal to 250 grams (.55 pounds)
- ii. Micro: From 250 grams (.55 pounds) to 2kg (4.4 pounds)
- iii. Small: From 2kg (4.4 pounds) to 25kg (55 pounds)
- iv. Medium: From 25kg (55 pounds) to 150kg (330 pounds)
- v. Large: Greater than 150kg (33 pounds)

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<sup>7</sup> FAA Modernization and Reform Act of 2012 (2012).

<sup>8</sup> <https://www.civilaviation.gov.in/> accessed on 16 April 2020.

<sup>9</sup> <https://dronesforkids.in/drone-laws-india/> accessed on 16 April 2020.

By virtue of the aforementioned regulation it is legal to own and operate drones by private persons in India provided that prior registration is done before the competent authority. Air Worthiness of any object that takes to the skies is essential. The presence of the following features has been mandated by the DGCA in each and every drone GPS Return-to-home, Anti-collision light, ID plate, A flight controller with flight data logging capability, RF ID and SIM/No Permission No Takeoff (NPNT)

India follows a **no permission, no takeoff policy** in operation of a drone, government permission is required before each and every flight. To simplify the process of obtaining the permission the government has launched the DigitalSky App which will automatically reject or accept the grant of permission app. The rules regarding registration and operation of drones do not apply to Nano and Micro category of drones. Drones which fly below 50ft and 200ft respectively are known as Nano and Micro.

Some other regulations as per introducing Civil Aviation Requirements, Section 3 – Air Transport Series X, Part I, Issue I, drone operators in India are mandated to follow:

- i. Pilots are required to maintain a direct visual line of sight at all times while flying.
- ii. Regulations do not allow Drones to operate at a height of more than 500ft.
- iii. Drones cannot take flight within 5 kms of an Airport or any other no fly zone as prescribed by the DGCA.
- iv. Do not fly your drone within 5km of airports or in areas where aircraft are operating.
- v. You must fly during daylight hours and only fly in good weather conditions.
- vi. Do not fly your drone in sensitive areas including government or military facilities. Use of drones or camera drones in these areas are prohibited.

To liberalize the regime further and tap the potential uses of drones especially for commercial purposes, the Ministry of Civil Aviation constituted a drone taskforce under the chairmanship of Hon'ble Minister of State for Civil Aviation. Accordingly, on the basis of the recommendations

of the task force, the Drone Ecosystem Policy Roadmap was released by the Ministry of Civil Aviation on January 15, 2019.<sup>10</sup>

## **B. Australia**

The Australian Civil Aviation Safety Authority (CASA) states that "Australia was the first country in the world to regulate remotely piloted aircraft, with the first operational regulation for unmanned aircraft in 2002."<sup>11</sup> Although Australia has been making efforts to amend its drone policy since 2016, the current regulations are contained in Part 101 of the Civil Aviation Safety Regulations 1998.<sup>12</sup>

As per Australia's drone policy, registration of drone aircraft and a pilot's license is not required in case of commercial drone flights if the drone weighs 2kg or less. If a drone weighing between 2 -25 only flies above the persons own land, he will be expected from the above requirements but if under similar conditions the drone weighs more than 25 kg, registration, license and an air worthiness certificate will be mandatory to operate such a drone. It should also be noted that in cases of recreational drone flights where the drone involved is small no documents are required under Australian Law. To obtain a license for operating a drone in Australia, operators must obtain certain qualifications, complete certain training, and have a minimum number of hours of experience flying drones.

Any application of drone in Australia mandates that the operator maintains a visual line of sight with the drone unless prior approval has been obtained.

## **C. United States of America**

The US Federal Aviation Administration (FAA) has adopted the name *unmanned aircraft* (UA) to describe aircraft systems without a flight crew on board which also includes drones.<sup>13</sup> On September 16, 2005, the FAA released memorandum AFS-400 UAS Policy 05-01 as a guideline

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<sup>10</sup> [http://www.nishithdesai.com/fileadmin/user\\_upload/pdfs/NDA%20Hotline/190121\\_H\\_R\\_DRONE-ECOSYSTEM-POUCY-ROADMAP.PDF](http://www.nishithdesai.com/fileadmin/user_upload/pdfs/NDA%20Hotline/190121_H_R_DRONE-ECOSYSTEM-POUCY-ROADMAP.PDF) accessed on 16 April 2020.

<sup>11</sup> <https://www.casa.gov.au/aircraft/standard-page/casa-and-remotelypiloted-aircraft> accessed on 16 April 2020.

<sup>12</sup> Civil Aviation Safety Regulations 1998 (Cth) (CASR), pt 101.

<sup>13</sup> *Unmanned Aircraft Operations in the National Airspace System*, FAA (2007).

to the usage of UAS in the U.S. National Airspace System.<sup>14</sup> In order to operate any private or commercial drone in the United States it is mandatory to register and obtain a license with the Federal Aviation Authority if the drone weighs between 250 grams and 25 kilograms. The law requires recreational drone pilots to pass an aeronautical knowledge and safety test. Unlike India mandatory insurance is not required for drones. Furthermore, to ensure safety of other objects in the skies and the people on the ground a drone cannot in uncontrolled airspace be operated at a height of more than 400 feet. It is mandatory to keep a safe distance of 5 miles from any airports. Drone operation is not allowed near public gatherings, national parks, and emergency operations. Drones are completely prohibited from operating in Washington and New York City. In one case in 2015, an individual in New York City crashed a drone into the stands during the U.S. Open. The charges resulted in community service for the pilot. In March 2016, a New York City man was charged with disorderly conduct after he accidentally crashed a drone into the Empire State Building. The individual, who pleaded guilty, was given community service and a \$200 fine.<sup>15</sup> In the case of *Singer v. State of Newton*<sup>16</sup>, Massachusetts passed a drone ordinance on December 19, 2016. The ordinance requires all drones to be registered, bans drones below 400ft above ground level without property owner permission, and prohibits flights beyond the visual line of sight of the operator. Federal District Court of Massachusetts struck down the local drone ordinance as being unconstitutional. It was appealed by the City to the appeals court, but the City asked for the case to be dismissed which the court granted.

In the case of *United States v. Jason Muzzicato*<sup>17</sup>, the defendant was alleged to have used a drone with explosives to terrorize his ex-girlfriend's house. Failing to register the drone was one the count included in the criminal charges.

#### **D. United Kingdom**

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<sup>14</sup> 'Unmanned Aircraft System Regulation Review', Final Report FAA (2009).

<sup>15</sup> ARTHUR HOLLAND MICHEL AND DAN GETTINGE, 'Drone Incidents: A Survey of Legal Cases' Center for the Study of the Drone at Bard College (2015).

<sup>16</sup> *Singer v. State of Newton*

<sup>17</sup> *United States v. Jason Muzzicato* (2017) 513 U.S. 196.

The UK has a stricter regulation in place for drones especially for drones which have a camera on board. These rules governing use of drones is enforced by the Civil Aviation Authority. The most important legislation that covers drones is the Air Navigation Order 2009 which was made under the Civil Aviation Act 1982 by virtue of which breach of drone regulations are considered to be criminal offenses, enforcement is ensured by the Civil Aviation Authority.

It is the responsibility of the operator of the drone to ensure that the aircraft is flown safely and that applicable laws are complied with. Article 138 of the Air Navigation Order provides that any person undertaking aviation activity "must not recklessly or negligently cause or permit an aircraft to endanger any person or property."<sup>18</sup> Article 166 and 167 of the Air Navigation Order provide for regulation relating to drones that weigh 20 kilograms or less are covered by articles. Aforementioned articles provide for prohibitions on dropping articles or animals from the drone that would endanger persons or property, requirements that direct, unaided, visual contact be maintained that is sufficient to monitor the flight path of the drone to avoid collisions with other vehicles or establishments. The order also provides for prohibition from flying the drone above 400 feet in altitude and farther than 500 meters horizontally away from the operator without obtaining prior permission from the Authority. Drones with cameras attached must not be flown within 150 meters of a congested area or 50 meters of a person, vessel, vehicle, or structure.<sup>19</sup>

Drone operators are mandated to obtain adequate insurance to cover their liability in case of an accident caused by drones which weigh more than 20 kgs. The Civil Aviation Authority is responsible for ensuring compliance with drone regulations, A number of individuals have been prosecuted for violating the restrictions contained in the regulations.<sup>20</sup>

#### DRONE USE: THREAT TO PRIVACY

The use of drones by civilians in a civil setting where it is particularly important to protect privacy of other civilians raises many questions. With drones equipped with advanced camera technology they can become a weapon for looking into the private lives of noninvolved parties.

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<sup>18</sup> Air Navigation Order 2009 art. 138.

<sup>19</sup> House of Lords, EU Select Affairs Committee, *Civilian Use of Drones In the EU*, (2015) HL 122 p.40.

<sup>20</sup> Wendy Pacer, *Safety Warning for Drones Given as Christmas Gifts*, Telegraph (London Dec. 25, 2014).

Authorities around the world are aware of potential use of drones which can result into violation of right to privacy, all jurisdictions that have allowed operation of drone for private or commercial application have mandated the operators of such aircraft to ensure that privacy of other individuals should not be violated. Many worry that small camera-equipped unmanned aircraft could enable users to fly over or near private property and record data that would not have been accessible by other means. The use of cameras on drones enables the operator to record images, including people without their consent which amount to a violation of right to privacy. A greater data protection and privacy issues can arise if media collected by a drone is posted on social media and evolve from private content into public content.

In a report published by the Privacy Commissioner of Canada it was stated that *'as drones are acquired and put to use in public and private sectors, it will be important to circumscribe their use within an accountability structure that ensures they are justified, necessary and proportional, and that the necessary checks and balances fundamental to a democratic society are in place to stave off proliferation of uses, abuses, and function creep. Canada's privacy laws will and do apply to UAVs deployed by public or private sector organizations to collect and/or use personal information about citizens.'*<sup>21</sup>

In October 2015, a man was found guilty of disorderly conduct and violating a local drone-related ordinance in DeForest, Wisconsin after numerous incidents in which he reportedly flew a drone over private properties. The DeForest court determined that the defendant had violated a recently adopted town ordinance that prohibits the use of drones for surveillance in locations where there is a reasonable expectation of privacy. The incident is the only known case of a drone user being prosecuted under a local drone ordinance for a privacy violation. He was ordered to pay a \$3,455 fine.<sup>22</sup>

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<sup>21</sup> MARTIN F. SHEEHAN & MICHAEL PARRISH, *Regulation of Unmanned Aerial Vehicles ("Drones") in Canada*, Fasken Martineau (2017).

<sup>22</sup> ARTHUR HOLLAND MICHEL AND DAN GETTINGE, *'Drone Incidents: A Survey of Legal Cases'* Center for the Study of the Drone at Bard College (2015).

In September 2015, a police officer in Valdosta, Georgia was found to be privately operating a drone over his neighbors' properties on several occasions. The officer was charged with felony eavesdropping and was fired from the local police force.<sup>23</sup> In the UK media obtained by drones is covered under the Data Protection Act as well as the CCTV Code of Practice, which address subjects of data collection and ensure privacy of person captured in the media. While making use of camera equipped drones for commercial purposes firms are required to be listed on the Data Protection Public Register under the legislation. Although privacy can be protected under other regulations and legislations most jurisdictions lack specific legislation with right to protection of privacy from aerial surveillance and drone use. India lacks any specific legislation regarding protection of privacy from drone use. The Privacy Rules reflect that any person should obtain consent in writing from the provider of the sensitive personal data or information regarding purpose of usage before information collection. The Privacy law is still in form of a bill in India.

#### DRONE USE: THREAT TO SECURITY

Civil application of drones can be dangerous to a certain extent, due to certain reason such as loss of control of the aircraft which can be due to a mistake of the operator, hacking, untrained operator's system failure or frequency interference. In such a situation where the drone is either out of control or it is being operated in negligent manner it can result into incidents and injuries. Liability can arise under negligence or criminal negligence for unintentional damages or injuries cause, whereas under certain circumstances penal liabilities can also arise.

In one case in 2015, an individual in New York City crashed a drone into the stands during the U.S. Open. The charges resulted in community service for the pilot. In March 2016, a New York City man was charged with disorderly conduct after he accidentally crashed a drone into the Empire State Building. The individual, who pleaded guilty, was given community service and a \$200 fine. In a similar case in October 2016, a drone crashed in Midtown Manhattan and the 22-year-old operator was charged with reckless endangerment and unlawful operation of a drone.<sup>24</sup>

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<sup>23</sup> <https://dronecenter.bard.edu/files/2017/04/CSD-Drone-Incidents.pdf> accessed on 19 April 2020.

<sup>24</sup> ARTHUR HOLLAND MICHEL AND DAN GETTINGE, 'Drone Incidents: A Survey of Legal Cases' Center for the Study of the Drone at Bard College (2015).

### CONCLUSION

There can be multiple civil uses of drone technology, some persons are interested in use of privately owned drones as a hobby whereas corporations have commercial interests. While the benefits of drone technology cannot be undermined, the threats from eventualities are also very evident. In the very short history of use of drones, we have witnessed cases from causing damage by negligence, willful misconduct to willful endangerment of life. To safeguard against the forceable threat of drones to privacy and security of citizens it is of prime importance that detailed legislation is drafted and made applicable. Although many countries have come up with regulations governing use of drones in a civil setting, these laws seem to be lacking in the areas of right to privacy and enforceability. It is also recommended that systems should be in place with law enforcement authorities to identify the offending drones. The authorities should also bring to effect regulations suggesting specifications for the design, production, maintenance, and operation of unmanned aircraft.