

Drone Technology in Sri Lanka: Urgency for an Effective Legal Framework

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Abstract— *The evolution of technology has paved the way to an era where anybody can accomplish their tasks with minimal effort. Among the various technologies that are being widely used in the world, drone technology shares a prominent place since it is an impressive outcome of technology development. Drones which are also known as unmanned aerial vehicles (UAV's) are, aircraft either controlled by pilots from the ground or autonomously following a preprogrammed mission. The persistent developments in the drone technology made it applicable in many fields in a beneficial manner. Despite all those positive aspects the numerous capabilities of drones carry a potential threat to the liberty of the people and security of the countries. Due to the perpetual development of technology the drones will be equipped with even more fascinating abilities in the future. Thus, it is of utmost importance to identify the line between the effective and excessive use of drone technology. It is the legal system of a country which has the power and ability to define the limitation and boundaries for an effective and secure use of drones. Therefore, this research has been conducted to analyze the current legal system on the use of drones in Sri Lanka and to find out the loopholes in the current legal framework in terms of regulating the use of drones. In that, the legal research methodology was applied, supported by primary data such as legislations and secondary data such as journal articles, newspaper articles and case reports. The constant issues arising due to ungoverned use of drones consistently prove the inefficiency of the current framework in addressing the problem. This stresses the importance of formulating a conceptual legal framework in order to regulate the unethical and unwanted use of drones. In conclusion, being a country which is heading towards development, Sri Lanka also processes the need to consolidate the existing legal framework regarding drone regulations. Therefore, further attempt was made to propose some suggestions to the government to successfully address the matter of excessive unnecessary use of drones.*

Keywords— Drones, Personal Liberty, National Security.

I. INTRODUCTION

A drone, basically in technological terms, is an unmanned aircraft. Drones are more formally known as Unmanned Aerial Vehicles (UAVs) or Unmanned Aircraft Systems (UASes). Essentially, a drone is a flying robot that can be remotely controlled or fly autonomously through software-controlled flight plans in their embedded systems, working in conjunction with onboard sensors and GPS¹. There is no exact history as to how the word 'drone' originated. However, it is said that word 'drone' comes from the buzzing sound of an airplane flying slowly overhead.

The history of drones dates to 1849, when Austria attacked Venice using unmanned balloons stuffed with explosives. Even though these balloons had been the first known drones, they do not meet the current definition of drones, which according to the Oxford English Dictionary is "a remote-less controlled piloted aircraft or missile". Therefore, the first pilotless aircraft, which agrees with the definition, is considered to have been developed after World War I in 1916. These early models had been launched by catapult or flown using radio control. In 1918, the US Army had started production of aerial torpedoes. This model, known as the 'Kettering Bug', had flown successfully in some tests, but was not used in the war. In the inter-war period, the development and testing of unmanned aircraft had continued. In 1935, Britain had produced several radio-controlled aircraft to be used as targets for training purposes. It is believed that the term 'drone' started to be used at this time, inspired by the name of one of these models, the DH.82B Queen Bee. In the United States also, radio-controlled drones were manufactured and had been used for target practice and training. UAVs had been first utilized on a large scale in the Vietnam War. Drones have also begun to be used in a range of other roles, such as acting as decoys in combat, launching missiles against fixed targets, dropping leaflets for psychological operations etc. Following the Vietnam War other countries other than Britain and the United States had begun to explore unmanned aerial technology. However, the actual credit for inventing a radio-controlled aircraft goes to Edward M. Sorensen who patented his

¹ Margaret Rouse, 'drone (unmanned aerial vehicle, UAV)' (TechTargetNetwork) <<https://internetofthingsagenda.techtarget.com/definition/drone>> accessed 2 May 2019

invention. This aircraft could know what it is doing from a ground terminal. Up today, various developments have had occurred regarding drones, with the development of the technology.

Hence, drones now have many functions, ranging from monitoring climate change to carrying out search operations after natural disasters, photography, filming, site observation in construction, and even delivering goods. But their most well-known and controversial use is by the military for investigation, surveillance and targeted attacks. These are now even used as weapons and have been credited with killing suspected militants.

Just as any other disruptive technology in the world, drone usage poses a challenge not only to economic structures but also to law. Most Asian countries are aware of drones' utilization for their national interests. However, to realize its fullest potential, a clear and strong legal framework for civil and commercial use of drones should be set first. This research provides an overview of the current legal situation regarding drones in Sri Lanka and lays stress on the urgency for a national legal framework exclusive to drones since it seems that the current legal framework is insufficient in combatting the various issues regarding drones.

II. SRI LANKA V DRONES

In Sri Lankan history of drones, they had been firstly used in military operations. While drones have been used by the military for over a decade, smaller, portable drones are now being used by ground forces on a regular basis. UAVs equipped with thermal imaging cameras have provided emergency response teams with an ideal solution for identifying victims who are difficult to spot with the naked eye. In addition to emergency response, drones have proved useful during times of natural disaster in the country. In the aftermath of natural disasters, UAVs have been used to assess damage, locate victims, and deliver aid. And in certain circumstances, they are being used to prevent disasters altogether. In combination with geospatial imagery, drones are now used to monitor and track animals. Sri Lanka uses drones for data collection on climate change and to identify weather patterns. One of the most popular commercial use cases for drones in Sri Lanka is construction planning and management. As ground surveying is still a critical part of construction planning and monitoring, the use of drone data has become increasingly important. Also, drones offer on-demand photography solutions for several different industries. Drones have already had an impact on event surveillance and event photography and film. Drones are now used in the sports sector also. Drone cameras provides up-close and personal perspectives that traditional, stationary cameras cannot capture in Sri Lanka. News outlets are using drones to add context and understanding to news stories, enhance production value, and improve documentary storytelling. This is an increasing trend in the country separately building an area called 'Drone Journalism'. Drones now are used for drone

rares as well as in high-tech battles. Furthermore, security companies are using drones to provide more comprehensive surveillance systems for industrial, commercial, and residential properties. Also, drones are used in law enforcement to reconstruct crime scene by the police and as a source of evidence.

III. CURRENT LEGAL FRAMEWORK ON DRONES IN SRI LANKA

In discussing the existing legal regime on drones, the Civil Aviation Authority of Sri Lanka (CAASL) has introduced regulations in the form of the Section 103, Civil Aviation Act No.14 of 2010. The first regulations were published in 2015. Then these regulations have been updated every year since then. According to the regulations drones are categorized in to four, based on their mass. Drones weighing 25 kg and above are known as category A. Category B comprise of drones of mass ranging from 1kg to 25kg. Drones weighing 200g to 1kg are included in the category C. Category D include drones of mass less than 200g. An analysis of drone regulations are as follows.

A. Categories and Operations

Category A drones need explicit approval. Category B drones must be operated under the authority of the Director General of Civil Aviation. Category C drones without any data capturing tools or any payload that may be a threat to safety or to the infringing of privacy, may be operated with the registration of a vendor who is certified for the purpose, by the Director General of Civil Aviation. The Category D drones can be operated below 150 ft without permission.

B. Flight Clearance

Drones carrying sensors or anything that has the potential to be a security threat or violate privacy, needs permission from the local police of that area. The exceptions are aerodromes or the presence of an authorized officer of the CAASL.

C. Manufacture of Drones

Any manufacturer of drones needs to be registered with the CAASL. The manufacturer needs to keep detailed records of each drone that's been built, and update records of any sales made, as well as the details of buyers. Regarding of category C drones, the third party must be informed in writing of the requirements of registering the craft with the CAASL.

D. Registration of Drones

Any drone fitted with sensor equipment needs to be registered with the CAASL. Any drone of category A or B needs to be registered, with category A craft having the same registration requirements as any other powered aircraft. Category C drones which are without data capturing or retrieval tools can be registered with a certified vendor instead of CAASL. Category D drones without any data capturing equipment are exempt from registration. Category A, B, and C drones all need an identification stamp on them. The registration certificate is valid for a period of two years and is renewable. The operator must keep the registration certificate on their person when piloting the craft. Transfer of ownership of the craft needs to be informed to the CAASL prior to operation, and if the craft ceases operations in the country or is unserviceable, the CAASL must be informed about this as well.

E. Registration of persons

A person who operates any drones of category A, B or C, needs to register at the CAASL. After completing a competency check, the operator will be given a 'Remote Pilot Authorization Certificate' on payment of a fee. The operator must be over 18 years of age unless otherwise authorized by the Director General of Civil Aviation. Moreover, the license must be renewed every two years. A person who is not a citizen of Sri Lanka will only be issued a temporary registration.

F. Safety Precautions

The drone, its propulsion systems, and any equipment attached to it needs to be carefully checked prior to flight. The pilot always needs to maintain awareness of the craft and the surrounding airspace. Unless otherwise authorized, the craft cannot be flown faster than a ground speed of 87 knots (100 miles per hour). They also cannot be operated under unsuitable weather conditions or when visibility is reduced to below 5 km. Operators are not allowed to operate more than one drone at once or to operate one from a moving vehicle. Operators are also not allowed to fly a drone when unfamiliar with the drone, when in poor physical or mental health, or under the influence of alcohol. Drones are not allowed to drop anything, tow anything, or display any banners without approval.

G. Restricted Areas of Operation

Drones have restrictions of airspace over public gatherings, assemblies of people, or crowded areas without express permission from the Director General of Civil Aviation. Drones are restricted of flight over roadways, railways, over or below open electricity lines, near communication towers, over national parks, archaeological sites, and over protected sites or security

establishments. Drones cannot be flown over property without permission from the property owner or whoever occupies the property. They also can't be flown offshore without permission from authorities.

H. Accidents and Insurance

When there is an accident or injury, the person operating the drone, or the owner of the drone must report the accident to the nearest police station. Also, the report on the incident have be submitted to the CAASL within 48 hours. This reporting should include the contact details of the owner and operator. Further, Category A, B, and C drones need to be operated with a valid insurance cover in case of third-party injury or damage.

I. Exemptions

The Director General may exempt the craft from these regulations, in case of humanitarian relief operations conducted by public organizations such as occasions like search and rescue.

III. ISSUES REGARDING DRONES IN SRI LANKA

Sri Lankans are generally favorable towards drones. However, there are concerns about safety, security and privacy associated with these operations. Drones usually being remote controlled, raises important legal, technical, operational and administrative issues facing their effective adoption. One such foremost consideration is the safety or security hazards they may pose to manned aircraft operations. When a drone flies near a manned aircraft, it can endanger manned aircraft operations by distracting pilots or risk being ingested into aircraft engines. Further there is a high possibility for a drone to hits a commercial aircraft on runway. However, Sri Lanka has not adopted clear rules regarding the interferences made by drones to the commercial planes and choppers. Drones have long been used in and developed for conflict situations for intelligence gathering, hostile surveillance and even air raids. Consequently, they also raise some significant security concerns. Privacy is another issue that is often raised in conjunction with drones, because of their great tendency towards inhibition of privacy due to their ability to access high places, relatively low signature, less recognizability and being out of reach. Though the drones in present market produce sound while operating, drones with zero sound can be designed in the future with the technological developments. Therefore, people's privacy will be highly affected with this technology. Multitude of incidents of privacy violations have been reported on drones, during the past few years in the country. Hence right to information of journalists contradicts with the right to privacy of people at some instances when using UAVs. One such example is when a drone was used to photograph the

coverage around the exhumation of slain journalist Lasantha Wickramathunga's body in Colombo, without the consent of the family members who did not want the media to cover the event due to personal reasons². Additionally, drones require the use of radiofrequencies, and this poses potential spectrum management issues unless regulated consistently. Moreover, in Sri Lanka number of incidents provide evidence as to these drones are used for various illicit activities. Organized crimes such as drug trafficking is happening in worldwide even at the very moment. There, Sri Lanka is also a victim of these organized crimes as the country's struggle with drug abuse and narcotic smuggling is well documented through the recent incidents in the country. Sri Lanka is rapidly becoming a transit hub for these illicit trades. In that, there is a high possibility to use drones in drug smuggling within Sri Lanka or across Palk Straight. Further, drones have been cited as a growing hazard to civil air traffic. The last few years have seen a rise of incidents which have involved drone and civil aviation traffic. The major security threat regarding drones is the potential use of drones in terrorist attacks as, terrorist can launch a deadly attack by detonating a drone full of explosives. Drone attack to the Russian Airforce detachment at Khmeimim Air base on January 6, 2018 during war at Syria is one such incident. A drone collision with an aircraft may lead to fatal accidents. Further the very recent incident relates to drones is that the Director General of Civil Aviation complying with the powers vested to him under Section 38 of the Civil Aviation Act banned the operation of drones until further notice due to the prevailing security conditions in the country after the Easter Sunday attack. Accordingly, any person who goes beyond that rule can be taken to the custody by the police under Section 107 of the Act. Therefore, it is evident that the issues related to the use of drones are enormous. Having a diversity of drone types and configurations and drones being developed in a massive scale in parallel with the development of the technology possess multitude of questions which should be addressed expressly by a strong legal framework.

IV. IS THE CURRENT LEGAL FRAMEWORK EFFECTIVE?

From a drone operator's point of view, the time and effort needed to get all necessary permission for a drone to be owned and operated, may seem impractical. It seems that the government is trying to control every single aspect of drone use and make it next to impossible for a first-time user making it cumbersome for anyone buying and operating drones in the country. Thus, the possibility of drone users resorting to unauthorized flight of drones is high and needs to be taken into consideration in practical implementation of regulations in the country.

Proving this, despite the presence of regulations to govern the issues on operating drones in Sri Lanka, heavy number of incidents have been and are being reported regarding the unethical or illegal use of drones comprising, use of drones around the exhumation of graves, crashing into stupas, or flying over crowds with scant regard for public safety and mostly violating the privacy of people. Many journalists who use drones for media work and most drone pilots in Sri Lanka seems to remain ignorant of regulations. In the other hand, there is no easy way to register a drone. The CAASL's systems are grossly outdated, and though it is now a requirement to register a drone and have a valid license before flying one, the CAASL itself seems not to know of any way to make this process easier for the general public. The frustration on this has inevitably resulted in drone flight that contravenes regulations, even by those who are interested in lawful flight. Further, ambiguities exist regarding insurance mechanism regarding drones. Insurance companies have no clear guidance on how to insure drones. Although there are four classes of drones as per the regulations, insurance companies have yet to formulate valuation guidelines in order to insure equipment presented to them, ranging from toys incapable of flight outside a home garden, to more capable machines that pose a far greater risk to property and persons. Moreover, it is unclear whether Police are fully aware of the CAASL regulations, which makes anyone flying or carrying around one even with proper documentation which they may not comprehend or recognize the validity of a terrorism-related suspect, fit for arrest, interrogation or harassment. Further there is no any proper legislation which addresses the privacy of people with respect to the flying drones. Right to privacy is recognized as important in the recent cases of Hewamanna v. Attorney³ General and in Sunday Times defamation case though the 1978 constitution has not explicitly identified privacy as a fundamental right. However still there is no any specific legislation regarding data protection other than the Tele communication Act. Therefore, it is urgent to have a more comprehensive legal framework which specifically focuses on the right to privacy when allowing drones. Further In most of the countries like US the legislation has introduced insurance policy for the damages caused to the houses and vehicles by drones. Yet in Sri Lanka there is no such legislation applicable for insurance companies. These issues are not addressed properly by law. It seems that the existing law is insensitive in addressing drone operators and the civilians of the country Therefore it is obvious Sri Lanka is in need of a legal framework which balances both drone operators' rights as well as other citizens' rights; a more reachable, effective and stronger legal framework.

²Fernando Warnakulasooriya T.(2017).Are drones invading our privacy? the Sunday Times, Available at <http://www.sundaytimes.lk/170122/sunday-times->

[2/are-drones-invading-our-privacy-225636.html](http://www.sundaytimes.lk/170122/sunday-times-2/are-drones-invading-our-privacy-225636.html) [Accessed date:27th May 2019].

³ Hewamanna v. Attorney General 1999 ICHRL.

V. RECOMMENDATIONS

Since legislators who introduced laws on drones in Sri Lanka have not addressed in depth about the aspect as to drones' usage in the civil society and harmful facets associated there with, and are insensitive for drone operators, they should introduce a stronger and effective legal framework than the one existing now. Legislators should choose a property rights approach to aerial surveillance. This approach should provide the opportunity for landowners to exclude aircraft, persons, and other objects from a column of airspace extending from the surface of their land up to a decided limit above ground level. That kind of an approach may solve most public and private harms associated with drones. Also, the legislators should recognize that technology such as geofencing and auto-redaction can be used and that will make aerial surveillance by drones more protective of privacy than human surveillance.

A solution may be found in the regulatory frame adopted by the Australian Civil Aviation Safety Authorities (CASA). CASA has a system to which a user can connect via a mobile application to file a flight plan request. The request is then processed by the CASA air traffic controllers where authorization issued or adjustments to the plan is notified to the client. The networked process alerts relevant defense, security and law enforcement agencies of the planned flight and the details of the drone operator and type of drone used. Such a networked system would enable greater situational awareness for air traffic control, better security screening and faster 'paper less' approval for the drone user. Further, CASA has made it mandatory for a 'drone pilot license' to be issued when using certain categories of drones. Such a practice may ensure the safe and professional use of drones and reduce risk, compliance issues and provide a professional standard to a budding industry. Hence, Civil Aviation Authority in Sri Lanka need to move towards smart regulation practices to effectively regulate drone use. Also, in respecting people's right to privacy Sri Lanka must introduce a Data Protection Act which regulates the privacy issues arising out of drones with cameras.

Furthermore, the Sri Lanka Air Force (SLAF) and law enforcement must make laws to monitor and counter the illegal use of drones. Having drone regulation does not guarantee that drones will only be lawfully used. As the SLAF and the Sri Lankan defense establishment looks to the future, the focus will shift from conservative military threats to new asymmetric threats which are dynamic. Further as per the experts in United Nations Security Council there should be a coordinated law enforcement

mechanism in global level to combine all expertise and developments made by different countries, military units and private sectors to identify threats imposed by illegal use of drones. The current SLAF air defense system is said to be not equipped to detect, and if necessary, intercept small drones. The vulnerability of critical infrastructure to drone related threats needs to be taken seriously. France has already equipped several units of the armed forces and security services with counter drone system for critical infrastructure security. Most of these systems use radio frequency jamming and GPS jamming to disrupt the operation of a drone, which results in either the drone automatically returning to its point of origin or crashing with the loss of control. Sri Lankan military has experience manufacturing radio jamming systems indigenously to counter radio controlled improvised explosive devices used by the LTTE terrorists. As such, those skills could be put to good use by the research and development units to design locally made counter drone systems for the SLAF and other security organizations to intercept drones that violate 'no fly zones' or to protect important installations. Coordination should be there with the Department of Police and other relevant organizations involved in facility protection services, as they would likely be the first responders in an unlawful drone use instance.

VI. CONCLUSION

The use of drone technology for various purposes is inevitable in the future. Sri Lanka faces greater challenges in dealing with drones due to lack of a proper legal framework in addressing these issues. Mere abundance of regulations to govern drones are not enough for the country unless they are useful and effective. Various problems regarding drones still occurring poses the question as to whether the existing laws are inefficient and inadequate. It is evident through the constant illegal activities in their the country. Hence a proper legal framework covering all most all the aspects of drones and balancing rights of both drone operators as well as the ordinary citizens should be introduced. This should be a more approachable one because the current legal framework seems to be less approachable which, it made its effectiveness a questionable.' The law must fill this gap. That is, after all, what the law is about, providing human values in an age where technology causes both profound wonderment and profound disruption.⁴

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