

 NORTON ROSE FULBRIGHT

The Big Read Book series
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Drones

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Dear reader

Welcome to Volume 6 of Norton Rose Fulbright's The Big Read Series on Drones.

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What is a drone?

A drone is a remotely piloted or unmanned aircraft which is controlled or piloted from a remote station.

Why does the use of drones need to be regulated?

Drones are becoming part of everyday life for individuals and businesses. The potential private and commercial applications are endless. But there are very few licensed commercial drone operators in South Africa, with many users operating drones illegally because of the cost and complexity of compliance. The authorities simply do not have the means to enforce compliance against all but the most egregious offences. But, regulatory changes are anticipated to take effect within the next year which may make licensing of commercial operations simpler and more cost effective, which will be a welcome development for the drone industry and users in South Africa. This Read Book provides an overview of the various regulations implemented by South Africa and a few other countries across Africa and the world. Before looking at the licencing and regulation of drones, we cover a case study of how insurers in South Africa are using drones, and insuring drone use.

Use of drones by insurers

South African insurance companies have embraced the use of drones and many have already obtained licences to operate drones for the purposes of assessing car accidents, property assessments of large structures and damage assessment in disasters such as fires, flooding or earthquakes.

Drones are cheaper to use, can travel faster than vehicles and can access unsafe and inaccessible areas. Instead of sending insurance assessors out sometimes hours or days after an event, a drone can immediately be dispatched and provide a live feed of its surveillance. This should assist in expediting the claim process and reduce costs.

Insurance fraud can be minimised since footage or images of insured goods can be taken by the insurers as soon as policies are taken out and as soon as they receive notification of a claim.

Liability

In 2019 the most common cause of drone accidents were pilot errors such as operating without a stable signal or not performing a proper pre-flight check. Almost 10 per cent of drones in South Africa are destroyed on their first flight.

Insurance companies are cautious to offer policies for drone cover due to the risk associated with unskilled pilots, high cost of repairs, the equipment's relative fragility, potential risk of injury and damage to property.

Recreational operators are unlikely to take out (expensive) cover for their drones and are likely to simply buy a new one in the event of a loss. However, for commercial operators who own a fleet of drones for the purposes of their business operations it makes commercial sense to insure their assets.

There are a handful of South African insurers who offer policies specific to the coverage of drones.

There are products on the market which are centred on the commercial (and even recreational) operation of drones. As a general summation these policies are similar to vehicle insurance that a person or entity may take out on a car or boat.

These policies tend to cover single or fleets of drones for theft and accidental loss or damage while in flight, on the ground or whilst in transport. They usually also include third-party liability cover as a standard.

Depending on the specific policy, this cover can be extended to include any spare parts for the systems as well as packages which are carried by the drones, be they detachable or affixed. Extensions to cover digital assets aboard the drones (images or videos which have been taken by the drones for example) from cyber-attacks are also available as well as policy extensions to cover the drone operators from any claims arising from their operation of the drone when used for the purposes specified in the policy .

The general obligations of an insured are also applicable to owners of drones such as the requirement for all reasonable measures and precautions to be taken to prevent accidents, theft or damage and compliance with all laws, regulations, by-laws and rules including those of the South African Civil Aviation Authority. Failure to do so may result in the rejection of a claim.

Drone owners are required to comply with all manufacturer requirements and should not perform repairs or dismantle the drone without prior consent from the insurer and/or manufacturer.

Insurers have the option to:

- Pay for the cost of repair of the drone less deductibles.
- Pay the replacement value of the drone.
- Replace the drone with one of the same make, type and in reasonably like condition where it is considered beyond economical repair.
- Take the drone as salvage including the drone title with all documents of record and registration.

The drone must be airworthy at the commencement of each flight and all log books, maintenance and other relevant records must be kept up to date and produced to the insurer on their request.

Claims are only payable where the drone was operated within radio line of sight for commercial operations and visual line of sight for private operations.

Insurers may also limit liability to the operation of drones within specific countries. This is a result of the lack of coherent global regulations on the operation of drones across jurisdictions.

General exclusions for liability insurance include:

- Exclusions such as wear and tear, deterioration or damage which requires maintenance, and a catastrophic failure from a lack of maintenance.
- Where the drone is being used for any illegal purpose or for any purpose other than those stated in the policy schedule or certificate of insurance.
- Where the drone is being operated by any person other than those named in the policy schedule or certificate of insurance.
- Where the drone is being operated in contravention of the Civil Aviation Regulations.
- Where the drone is operated in contravention of the requirements set out by the manufacturer.
- While the drone is being operated outside the geographical limits stated in the policy.
- While the drone is in the care, custody or control of any person under the influence of alcohol or non-prescribed drugs/controlled substances.
- Any damage that is not sudden and unforeseen or that happens over a period of time.
- Any indirect property losses from occurrence of a peril or any identifiable physical injuries.
- Any consequential losses from an occurrence.
- Any loss of profits.
- Any fines, penalties, punitive, exemplary or vindictive damages.
- Loss, damage and/or bodily injury (fatal or otherwise) caused directly or indirectly by the modification of the drone by any entity or individual that is not approved by the manufacturer.
- For loss, damage and/or bodily injury (fatal or otherwise) caused directly or indirectly due to use in racing, time trials, aerobatic displays, formation or "swarm" flying, or other such activities.

Further exclusions for liability cover include:

- Damage or legal liability, loss or any consequential loss directly or indirectly caused by or arising from the incapacity or failure of any computer.
- War, invasion, acts of foreign enemies, hostilities.
- Civil war, rebellion, revolution, insurrection, martial law, military or usurped power or attempts at usurpation of power.
- Hostile detonation of any weapon of war employing atomic or nuclear fission and/or fusion or other like reaction or radioactive force or matter.
- Accidental or intentional terrorist acts caused directly or indirectly by the drone.
- Any malicious act or act of sabotage.
- Confiscation, nationalisation, seizure, restraint, detention, appropriation, requisition for title or use under the order of any Government (whether civil, military or de facto) or public or local authority.
- Hi-jacking or any unlawful seizure or wrongful exercise of control, which includes cyber-attack of the drone (including any attempt at such seizure or control) made by any person or persons acting without the owner's consent.

Accidental third party damage either bodily or to property can also be covered by the insurance policy. However, injury or loss sustained during the course and scope of employment which requires the operation of a drone, by members of the same household as the insured, property belonging to or in the care or custody of the insured, consequential losses; fines; penalties; loss or damage as a result of trespassing or breaching privacy laws or data misuse and whilst the drone is being transported are excluded.

South Africa

Drones, or remotely piloted aircraft systems, are considered aircraft. An aircraft is defined as any machine that derives support in the atmosphere from the reactions of the air, other than the reactions of the air against the surface of the earth and are regulated by the Civil Aviation Act and Part 101 of the Civil Aviation Regulations.

The Civil Aviation Act (CAA) is the backbone of flying activities in South Africa, and applies to all South African aircraft and personnel.

Part 101 of the Civil Aviation Regulations regulates the use of drones, except for model aircraft, toy aircraft, non-type certificated aircraft (which is an aircraft that does not qualify for the issue of a certificate of airworthiness) or unmanned autonomous aircraft (that is, aircraft that are not piloted by a person either in person or remotely).

It is important to distinguish drones from toy and model aircraft since drones are easily and cheaply available to consumers who might not be aware of the legal implications associated with drones:

- An drone is an unmanned aircraft which is piloted from a remote pilot station, excluding model aircraft and toy aircraft.
- A toy aircraft is a product falling under the definition of aircraft which is designed or intended for use in play by children.
- A model aircraft is an aircraft that does not carry humans or goods and is capable of sustained flight in the atmosphere and used exclusively for air display, recreational use, sport or competitions. This is different to unmanned aeronautical vehicles, which is developed for commercial, governmental, scientific research or military purposes.

A drone purchased off the shelf for recreational and personal use would fall under the definition of a model or toy aircraft.

Part 101 of the Civil Aviation Regulation places a significant regulatory burden on commercial drone operators akin to that of ordinary commercial aircraft operators.

The requirements include registration of the drones, licensing of pilots (being a natural person who operates the flying controls of an aircraft) and licensing of the operator (being a person or artificial entity holding a valid licence and operating certificate or equivalent thereof, authorising such person to conduct scheduled, non-scheduled or general air services and airline, air carrier, air service operator or commercial air transport operator services) by both the Civil Aviation Authority and the Air Services Licensing Council.

Failure to comply with the Civil Aviation Act and the Regulations carries maximum sentences of a fine, imprisonment up to ten years, or both.

Drones are classed in relation to their dimensions, power and the height at which they can fly. Class 1 and 2 drones are those that weigh less than 20 kilograms and which cannot be operated at a height of more than 400 feet above the ground. The Civil Aviation Regulations apply to the operation of class 1 and 2 drones only. Currently only the Weapons Act applies to drones which weigh over 20 kilograms as these are not yet easily available in the country. We expect that the new regulations would seek to address these types of drone operations.

The Civil Aviation Regulations set out four categories of drone operations - commercial operations, corporate operations, non profit operations and private operations. A commercial air transport operation is an air service that is operated by means of an aircraft for reward. A non-profit operation is not defined but on a plain language reading it is an air service provided by an aircraft that is not aimed at generating income. A corporate operation is when the drone is operated to further the conduct of a company's business.

Commercial operations

- Drones used for commercial, corporate or non-profit operations are far more heavily regulated than those used for private operations. The regulatory requirements triggered by these uses include requirements to apply to the South African Civil Aviation Authority (the SACAA) for a Letter of Approval, a Certificate of Registration, a Remotely Piloted Aircraft System Pilot's licence and a Remotely Piloted Aircraft System Operator Certificate (ROC).
- A Remote Pilot is the person who manages the flight command instructions of a drone during flight. A ROC, unlike a licence, is not limited to one natural person but applies to any legal or natural person who intends to operate one or more Drone.
- The ROC requirements match the International Civil Aviation Organisation (ICAO) five step process: pre-application, formal application, document evaluation, demonstration and inspection, and certification. A ROC is valid for one year and then the holder has to apply for renewal.
- There a number of training centres for drone operators in Gauteng and only one in the Western Cape.
- In order to apply for a drone pilot's licence the following requirements must be met:
 - The applicant must be over the age of 18.
 - The applicant must hold current favourable medical assessments.
 - An approved training organisation must be identified for training.
 - Foreign theoretical training may be approved and validated.
 - Passing of the practical assessment as set out by the SACAA.
 - Passing of a radiotelephony exam as set out by the SACAA.
 - Achieving an English language proficiency of level 4 or higher.
- A remote pilot's licence is valid for two years and the holder is then required to submit to a revalidation check before the licence can be renewed.
- An application to operate a drone must be submitted to the Director of the SACAA to issue a letter of approval and a certificate of registration. This application requires the submission of a document specifying the standard to which the drone was designed or equivalent documents demonstrating the safety levels or systems safety as prescribed in Part 101 of the South African Civil Aviation Technical Standards, 2011 (SA-CATS).
- In order to apply for approval to operate a drone the following information must be submitted:
 - The drone manufacturers operating manual.
 - For Class 1 and 2 drone - details regarding the drone such as its type, structure, composition, dimensions, mass, balance, frequencies use, remote pilot station, ground support equipment and flight recovery systems.
 - Information pertaining to the performance of the drone such as the maximum altitude, maximum endurance, maximum range, airspeed, maximum rate of climb, maximum rate of descent, maximum bank angle, turn rate limits and propulsion system.

- An ROC holder has to apply for the Director of the Civil Aviation Authority's approval in order to use the drone for purposes of releasing, dispensing, dropping, delivering, or deploying objects or substances for their commercial operation.
- Any drones of any size used for commercial operations must hold an Air Services Licence in terms of the Air Services Licencing Act.
- The ROC holder bears the responsibility of developing an operations manual which has to be approved by the Director of the CAA and has to perform background and criminal checks on any personnel who are required to work with the drone.
- Importantly, the holder of an ROC is also required to be insured for third party liability (similar to taking out insurance for third party liability when insuring a car).
- A commercial use drone registered in South Africa is deemed to have South African nationality and must be engraved with an identification plate including its nationality and registration marks. The SA-CATS specifies the particulars required for such identification.

Private operations

- Regulations relating to private drone use are more relaxed. The drones are not registered and there are no licencing requirements.
- Private drone operations are the use of a drone for an individual's personal and private purposes with no commercial outcome, interest or gain.
- The drone has to be operated in the pilot's visual line of sight at all times and the drone itself must be categorised as a Class 1A drone (with a weight of less than 1.5kg) or a Class 1B drone (with a weight of less than 7kg).
- A private drone may not:
 - Fly above 400 feet from the surface the pilot is operating it from.
 - Fly within 50m of another person or building.
 - Fly at night.
 - Fly in bad weather conditions such as thunderstorms or fog, which affect visibility.
 - Fly beyond visual sight.
 - Fly in controlled air space.
 - Take off or land on a public road.
 - Release or dispense objects or substances.
 - Carry dangerous goods, which are any articles or substances that are capable of posing significant risk to health, safety, property or environment when conveyed by air.
 - Perform aerial or aerobatic displays.
- Private drones cannot be operated above or adjacent to military zones, aerodromes, airports, helipads, prisons, nuclear power plants, police stations, crime scenes, courts or national key points.

Potential amendment of the legal framework

- Part 101 has been in force since 2015 and to a large extent reflected international practice of drone regulation at the time. Drone use was relatively untested but the potential for harm and damage was readily foreseeable.
- Internationally, there is a move to reduce the number and extent of these blanket prohibitions, as listed above, and to limit the requirements for commercial licensing depending on the weight of the drone and the operating environment. These legislative amendments are being implemented in other jurisdictions as regulators become more comfortable with the public and small businesses using drones, and with the understanding that enforcement of the overly prescriptive legislative requirements is impossible.
- There is talk in the South African aviation industry of South Africa adopting a more permissive and flexible regulatory approach to drone use. This will be a welcome development by the drone industry, and by other industries wanting to incorporate drone use into their operations. These changes will take a few years to develop and implement.

Potential legal consequences for the registered owner of drones

- In terms of the existing regulations, commercial drone operators who have registered their drones are strictly liable for any damage caused by their drone to persons or property on the land or water excluding mid-air collisions. This means that the person claiming damages from the commercial drone operator does not need to prove that the operator was negligent. The damage caused by the drone is deemed to have been caused by the wilful act, negligence or default of the operator. This is the same basis on which damage for 9/11 was settled by the insurers of the owners of aircraft involved in those attacks because the aircraft collided with immovable property and not, for example, another aircraft.
- There will always be the risk of a drone colliding with high tension wires, cellphone masts (cell site, a cell tower or cellular base station), lightning conductors, buildings and people. In the event of damage being caused, the owner of the drone will be absolutely liable due to the fact that the regulations prohibit the operation of a drone in close proximity to people, immovable property or electrical wires.
- International conventions are not often referred to within the context of drones. However, the Chicago Convention on International Civil Aviation, forming part of South African law, prohibits the flight of drones (termed "pilotless aircraft") across borders from South Africa without the appropriate authorisation. Further, the Montreal Convention for International Carriage by Air, also forming part of our law, applies to cross-border commercial drone operations whether or not for reward.

Some potential legal consequences for all users of drones

- Drones are not required to be registered for private operations and accordingly the strict liability provisions would not apply in the event of an accident.
- In these circumstances, a third party who has suffered damage caused by a drone may bring a claim for damages against the negligent pilot of the drone.
- The third party must prove that the pilot failed to operate the drone in a reasonable manner and in so doing caused the third party harm. The negligent drone operator may face significant costs in this regard, and is unlikely to have third party liability insurance to rely on (as third party liability insurance is not readily available in this country for drone operations as yet).

Consumer Protection Act (CPA)

- Section 61 of the CPA states that the producer or importer, distributor or retailer of any goods is liable for harm caused as a result of supplying any unsafe goods or a product failure in any goods. This liability arises irrespective of whether the harm resulted from any negligence on their part. Anyone can claim for harm caused by the supply of unsafe goods, hazardous goods or even poor instructions accompanying goods sold.
- If a drone causes harm to a person or damages property, then based on the courts' recent application of Section 61 of the CPA, it is possible that a court would find that the harm resulted from product failure, provided that this can be proved, or that the harm was caused while supplying unsafe or hazardous goods from the drone. However, the occurrence of a drone failure due to a manufacturing defect is far less common than pilot error.

Protection of Personal Information (POPI) Act

- The purpose of the POPI Act is to regulate how personal information is processed. Processing is defined as the automated or non-automated activity of collecting, recording, organising, storing, updating, distributing and even deleting information.
- With the use of drones increasing both in the commercial and private sectors, there are raising concerns of privacy infringements.
- Drones pose novel issues with regard to potential privacy infringements such as being able to stream live content or take photos without someone being aware (or without their consent) as well as difficulties in identifying who the remote operator is. However, with the enactment of POPI, doing so can result in a penalty in the form of a fine or even imprisonment in terms of s107.
- Drone operators should therefore familiarise themselves with the provisions of the POPI Act and should not record or share any footage of other persons or their property without obtaining the necessary consent first.

Cyber-risk

- There is a greater risk of cyber threats due to the growing reliance on digital government service, and growing range of threats from foreign powers, terrorists and criminals. South Africa has been the country most often hacked in Africa, with an estimated cost of R2.2 billion.
- With an estimate of between 30,000 and 50,000 drones currently being operated in South Africa, there is an increased risk of cyber-attacks. Unfortunately South Africa lags behind advanced economies in cybersecurity legislation, in government coordination, in engagement with business and citizens, and in the supply of skilled labour.

- The potential use of drones in a terrorist attack against critical infrastructure and soft targets is a growing concern for law enforcement across the world as the availability of drone technology becomes more widespread globally.
- Hacker drones can eavesdrop electronically on conversations, can perform network attacks, or can create a fake wireless access point that can trick an organisation's employees to connect to it, instead of the corporate LAN. Drones are relatively inexpensive, easy to operate and can carry heavy payloads that can perform surveillance, capture data, or disrupt networks.
 - The surveillance capabilities which make drones useful to security companies, similarly make them useful to potential assailants who might use an off-the-shelf drone to case a location, examine security features or track personnel. It is also very difficult to regulate the use of off-the-shelf drones so any criminal can easily access a drone and use it to target individuals.
 - The same ability to carry a package which makes them useful as a logistics platform has long been a cause for concern to security professionals who point out that that package could just as easily be an Improvised Explosive Device (IED). Saudi Aramco, the state owned oil company of Saudi Arabia, was recently the victim of a terrorist attack which utilised drones to breach security with IED's aboard and cause damage to refineries in the gulf state. While this specific attack used drones which were designed for the military, it is not difficult to modify civilian drones for this purpose.
 - A drone's ability to defeat physical security has seen them become a useful tool for cyber-attacks. A small commercial drone can carry networking equipment which can then be placed in position to launch a cyber-attack, making techniques like air-gapping a network not as secure (air-gapping is when a secure network is isolated from unsecure networks).
 - There is then the threat posed to drones themselves. As an Internet-of-Things (IoT) device, or even just due to needing to transmit back to some sort of base station or controller, drones are vulnerable to cyber-attack. The incentive currently is minimal for cybercriminals, but as drones proliferate and are used in logistics, the packages they carry may make them valuable targets. Similar to how criminals high-jack a vehicle which they use in committing subsequent crimes, there may also be incentive for criminals to hack drones to use them in a subsequent crime such as those listed above.
 - The potential for cyber threats means that there is an increased risk for liability.

Drone liability policies and cybersecurity related incidents

- There are two potential risks for cyber-attacks of drones – drones used as a target and drones used as weapons. If a drone was used to launch a cyber-attack against the company, that would fall under a cyber-liability policy; if it was used to deliver an IED that would likely fall under policies covering damage to company property or business interruption insurance.
- Therefore it is essential to first determine the cause of the damage which occurs from the attack:
 - If a drone system was attacked and a single, or even multiple drones, were forced to go offline and then physically taken by the malicious actors, this would likely fall under theft cover.
 - If the attack was to render a drone inoperable this may fall under damage cover.

- If the attack was to take a drone offline, halting the operations of the company, this may not fall under the drone policy at all and instead under business interruption policies.
- If the attack was not to cause any physical effect, but rather to gain access to data aboard or transmitted by the drone then, depending on the policy, this too may be covered.
- Many drone policies offer as an extension to cyber-risk, to cover data aboard a drone which is rendered inoperable (either maliciously or by accident) or stolen.
- Ultimately coverage for a cyber-related incident is dependent on the policy wording and it is important to conduct frequent reviews of legislation and all policy coverage to ensure adequate cover for a company's needs.

Africa

By the end of 2019 only 60 per cent of African countries adopted regulations specifically in respect of drones whereas other countries such as Mali and Mauritania refer to drones in their aviation regulations.

Commercial use in Africa

- While recreational drone use still largely outstrips commercial drone activity in Sub-Saharan Africa, there are growing commercial use cases for drones in Africa. This traditionally has been in the uses derived from the drone being a mobile camera/sensor platform and the associated uses of those cameras or sensors. There is now also a move towards using drones as logistics platforms.

Delivery

- The use of drones for delivery purposes is especially attractive in Africa as it will allow access to rural areas or areas in political unrest.
- The most common use of drones for delivery purposes is for food, water and medical supplies.
- Drones have been used to transport COVID-19 test kits and results across Africa and the globe. This decreases the risk of people coming into contact with the virus and is also a much quicker and cheaper process.
- Malawi is currently using drones to transport HIV tests to and from rural areas and there are well established companies who have been delivering blood derivatives to clinics across Rwanda and Ghana with plans to expand further.
- Ghana is currently using drones to provide rural areas with birth control and medical supplies. This is funded by the United Nations Population Fund which strives to assist financially and otherwise, young mothers and pregnant women and to promote reproductive health. This used to take two days but with the use of drones it takes 30 minutes.
- The South African National Blood Service is trialling its own drone delivery service and Unicef has been instrumental in setting up trials of drone assisted logistical systems for healthcare products including vaccines, blood samples and anti-venoms with the first such trial in Malawi and plans to expand to Namibia and Sierra Leone.

Surveillance and Mapping

- An established commercial use of drone technology is in surveillance and mapping. Companies use drones to perform surveys and gather mapping data for agriculture and mining operations. This can include more complex operations such as 3D modelling or inspections in hard to reach or dangerous locations such as flood zones, collapsed structures or the exterior of large buildings.
- Another emerging area is security surveillance utilising drone platforms. There are companies now offering aerial drone reconnaissance in securing farms, mines and residential estates. Large drone manufacturers are also starting to provide versions specifically tailored towards this segment, with thermal vision, flood lights and even loud speaker systems on board to facilitate better use in security applications.
- A number of countries are using drones to combat poaching and augment safaris.
- A Moroccan based company has developed software to monitor illegal maritime activity like illegal fishing or oil spillages.

Videography

- Videographers have been using drones for a long time instead of mounting a camera to helicopter, which was more costly.
- This is also the largest aspect of the commercial market, with a google search revealing dozens of entities offering drone videography services.

Entertainment and advertising

- A major bank was at the forefront in South Africa in using a drone to advertise their new logo. This is an area of the drone industry which will likely grow in the coming years.
- The increasing disfavour towards fireworks displays may work in favour of drone swarm technology which can put on an aerial performance without the associated noise and danger of fireworks.
- Another use of drones in advertising is in the replacement of banner planes, with a much smaller and cheaper to run drone being used to tow banners across festivals instead.
- With regard to drone entertainment, video piloted drone racing is also becoming more popular with competitors using virtual reality headsets to pilot and race drones as if they were aboard the drone itself.

Operations across Africa

- It is illegal to operate a drone in Egypt, Libya, Algeria, Cote d'Ivoire, Kenya, Madagascar, Morocco and Senegal.
- South Africa, Rwanda and Namibia have developed strict drone laws.
- South Africa is the only country in Africa that has accredited training centres for drone pilots.
- The lack of coherence across the continent restricts the use of drones across borders.

Nigeria

The Nigerian Civil Aviation Authority (NCAA) has banned unauthorised drone use in the Nigerian airspace, therefore, a drone can only be operated by an owner who has obtained the requisite permit. Flight plans must be submitted to the NCAA for authorisation prior to conducting each individual drone flight within Nigeria.

Drone operators must obtain a Remotely Piloted Aircraft Systems Certificate prior to flying in Nigeria. All drone operators must be at least 16 years of age or older.

Drones may not be operated in a reckless or other manner that may cause harm to person, property, or other aircrafts. A drone cannot fly across the border from or into another state or over the high seas without proper authorisation from Air Traffic Control.

Rwanda

In terms of Rwanda's Civil Aviation Authority, flying a drone is legal in Rwanda. Rwanda is at the forefront of the continent's drone technology use and deployment. Due to the treacherous terrains and rain which can often wipe out roads, drones are being used to deliver medical supplies to hospitals in biodegradable packages without even landing, just simply dropping the protected package.

Only Rwandan citizens can register drones and registration can take up to three months to be processed. CAA has further stipulated conditions for the operation of a drone such as the minimum age of a drone pilot being 21 years old, mandatory drone insurance and restrictions similar to those in South Africa on the height a drone may be operated and where it can be flown.

Uganda

Drone operations are permitted in Uganda and the government is currently working on specific regulations for drones. Although a permit is required only for commercial use and not recreational use of a drone, authorisation is required for both uses from the Commander of Defence Forces and the CAA before embarking on a flight.

European Union

The European Aviation Safety Agency (EASA) implemented updated rules applicable for all member states from June 2020 available at www.easa.europa.eu/regulations.

The EASA rules intend to replace national regulations by individual countries, however, member states can set their own no-fly zones.

The regulations categorise drones as "open" which does not require prior authorisation, "specific" which requires authorisation according to the mitigation measures identified in an operational risk assessment and "certified" which requires certification of the drone, a licenced remote pilot's licence and operator approval from the competent authority.

The regulations provide a framework for the safe operation of drones while allowing for growth of the industry and further ensures the protection of privacy, security and data.

The regulations define technical and operational requirements and combine both product and air legislation.

Although the regulations do provide flexibility for member states, it aims to achieve a coherent and harmonised set of rules to encourage and regulate the circulation of drones across the European Union seamlessly.

United Kingdom

The UK is expected to enforce new drone rules from December 31, 2020.

Currently the UK Civil Aviation Act and the Air Navigation Order applies to the operation of drones. 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. The Civil Aviation Act similarly requires that drones must not present or create a greater hazard to persons, property, vehicles or vessels than that which is attributable to the operations of manned aircraft.

Operations of small drones do not require any further compliance with the Air Navigation Order such as airworthiness or licensing and further permission is not required from the CAA to perform any flight provided that it is not done for valuable consideration and not close to people or buildings.

Drones may not be flown within 150 metres near or over congested areas, near crowds of 1 000 or more people, vehicles, structures, vessels and within 50 metres of people. There are also no-fly zones such as prisons, nuclear power stations and controlled airspaces.

In order to fly a drone for commercial use a licence must be obtained from the UK Civil Aviation Authority.

The use of drones to record images, including with consent, can result in a possible infringement of the Data Protection Act and the CCTV Code of Practice. Commercial users must ensure compliance with all privacy laws and recreational users are also encouraged to do so.

Drones registered by other countries are not permitted to fly over the UK for the purposes of aerial photography or survey, whether for commercial or recreational use, without the permission of the UK Secretary of the State.

United States of America

The Federal Aviation Administration (FAA) of the United States Department of Transportation has issued advisory circulars in relation to the operation of drones. The advisory circulars are not binding or enforceable.

Drones for recreational use are not tested to any FAA standards. Therefore, it is the operator's responsibility to ensure the safety of the flight and to comply with Federal, State and local laws and the operator must not endanger the safety of the National Airspace Systems. Recreational drones must be operated within a visual line of sight and must not interfere with the operation of manned aircraft.

In order to operate a drone for commercial use a remote pilot's certificate must be obtained and the drone must be registered with the FAA. Registration is valid for three years. The FAA has also published specific rules pertaining to the conditions of the operations for both commercial and private use available at https://www.faa.gov/uas/recreational_fliers.

Australia

Australia was the first country in the world to regulate the use of drones in 2002. In Australia the operation of drones is regulated by the Australian Government Civil Aviation Safety Authority.

A remote pilot licence and specialist training are required if an operator wishes to operate a drone larger than 2kg for commercial use, outside the standard drone operating conditions and for a remotely piloted aircraft operator's certificate holder. A remotely piloted aircraft operator's certificate is required for all operations for commercial use. In order to obtain the licence remote pilot training at a certified training provider is required.

The general operating requirements to legally operate a drone are similar to those in South Africa such as the height and location of operations and conditions which are not permissible.

A remote pilot's licence is not required for recreational use, use over your own private land or for drones that weigh less than 2kg. However, if the drone weighs more than 250 grams for recreational use over your own land then accreditation is required. Accreditation entails a short safety video followed by an online quiz.

When operating a drone for recreational use it cannot be operated above 120 metres off the ground in all locations or in areas where public are at risk or where there is an emergency operation and further cannot be operated within 30 metres of other people unless other people are essential to controlling or navigating the drone.

A team of inspectors and enforcement officials have been appointed by the Australian government to ensure compliance with the regulations and public reporting on non-compliance is encouraged. Fines up to \$1 050 per offence can be issued and demerit points can be listed against an operator's licence or certificate. If a matter is escalated to court

then an offender can be fined up to USD10,500, convicted of a crime or receive demerit points. If a drone is operated in a hazardous manner to other aircraft then the penalty can be up to two years imprisonment or a fine of USD25,200. The same penalty can be imposed if someone interferes with the operation of a drone or attempts to shoot it down.

Interestingly, the Australian Federal Police are using drone detection devices to detect drone infringement.

Conclusion

No matter where in the world you plan to fly your drone, and whether for recreation or commercial purposes, the flight will have to be conducted in a manner that is safe, in permitted areas and does not breach any privacy rights and has insurance if operated for commercial purposes even if the country does not have specific drone regulations in place.

With the use and presence of drones increasing, especially in the wake of the world's current pandemic crisis, there is a greater need for cohesive drone regulations. We anticipate that discussions around global drone regulations will take flight during the next few years.

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