

# Bhutan Civil Aviation Authority

**Drone Operations     DRAFT**

**Part 1 Regulation**

**No person may operate an aircraft in a  
careless or reckless manner so as to endanger the life or property of another**

## **Abbreviation and Definitions**

BCAA	Bhutan Civil Aviation Authority
Drones	are more formally known as unmanned aerial vehicles (UAV)
MTOW	Maximum Takeoff Weight
RPAS	Remotely Piloted Aircraft Systems
UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicles
VLOS	Visual line of sight

## **Definitions**

**Bhutan Civil Aviation Authorities:** Is the Authority that has the responsibility to set Rules and regulations for safer airspace over the Kingdom of Bhutan.

**Maximum Takeoff Weight:** Is the total weight of the unmanned aircraft at the time of takeoff, including the weight of any payload as camera, fuel and batteries.

**Pilot:** Is the person who has the responsibility throughout the duration of the flight.

**Visual line of sight:** Means unaided (corrective lenses and/or sunglasses exempted) visual contact with the unmanned aircraft sufficient to maintain operational control of the aircraft, know its location, and be able to scan the airspace to see and avoid traffic.

**Unmanned aircraft:** Means any aircraft operated without a pilot on board.

This wide definition will allow establishing rules for different kinds of operations.

It needs to be understood that this definition also includes machines normally not perceived by the general public as aircraft, such as flying toys, small tethered balloons or kites as mentioned in Annex 7 to the Chicago Convention.

Special attention is therefore required to not negatively impact any 'operation' that does not cause aviation risk.

**Permit to Fly:** Is the personal permit to fly Drones in the Kingdom of Bhutan

## **Need of creating Regulation**

The growing demand flights permits from operators or individuals

The affordable and easy operation of unmanned aircraft offers the possibility to almost everybody to become an airspace user, but it cannot be assumed that all actors have a strong aviation culture and are aware of the safety consequences their actions have.

In the unmanned aircraft sector, most of the operations are typically non-aviation-centric and even most commercial operators do not consider themselves as aircraft operators; they just want to use a tool for their needs.

### **Affected stakeholders**

General public

Manufacturers and operators of unmanned aircraft

Air Navigation Service providers

Airspace Users

### **Scope**

Proportionality is the most important, feature of the regulation.

The requirements associated with each unmanned aircraft activities are tailored to the risk associated with each activity.

Even small unmanned aircraft can quickly fly high enough, thus posing a severe risk to aviation safety when flying outside the limitations.

In theory, depending on the area of operation, even heavier unmanned aircraft would not necessarily increase the risk, but a practical limit needs to be established.

### **Regulation Centric**

This regulation is based on the risk posed by unmanned aircraft operations.

A crash in an unpopulated or desert area would lead only to the loss of the unmanned aircraft whereas the same event may have different consequences if occurred in a major city or close to an aerodrome.

### **Risk**

The level of risk depends on:

The weight, the size and the complexity of the unmanned aircraft

The population density of the area

The design of the airspace, the density of traffic and the services provided therein.

The introduction of unmanned aircraft in the aviation system should be made in such a manner that it does not create undue burden for other aviation stakeholders.

### **Applicability**

This regulation applies all over airspace of the Kingdom of Bhutan.

This regulation shall apply to operation of unmanned aircraft, their engines, propellers, parts and non-installed equipment, as well as the equipment to control unmanned aircraft remotely, where such aircraft are operated within the area of Bhutan airspace.

This regulation it applies to both commercial and non-commercial operations as identical unmanned aircraft might be used for both commercial and non-commercial activities with the same risk to uninvolved parties.

This regulation applies to drones that have MTOW from 250 grams, up to 6 kilograms and flying outdoors.

Unmanned aircraft maximum weight of less than 250 grams is not subject to the restrictions of this Regulation.

This regulation does not apply to Indoor flights.

Unmanned aircraft exceeding 6 kg can fly in Bhutan under special authorization not covered by this Regulation. These flights must follow the flight rules for manned aircraft.

### **Oversight and enforcement**

Manned aviation in Bhutan has developed its own oversight and law enforcement mechanisms. The BCAA has supervised the implementation of this Regulation. This Regulation expected to be imposed by the National Safety and Security forces of Bhutan. The Bhutan Royal Police and the Royal Army, when realized unmanned aircraft activity has the right to perform checks and inspection of pilots "Permit to Fly" as also the aircraft weight.

Police and other law enforcement agencies are expected to play a key role in the oversight of the unmanned flight activity.

### **Safety and Security Risks**

The following Safety and Security risks of unmanned aircraft operation need to be addressed:

- Harm to people on the ground
- Mid-air collision with manned aircraft
- Damage to critical and sensitive infrastructure

The risk in terms of severity depends on the ability of the unmanned aircraft to injure persons or to create damages when flying out of control or crashing.

### **Operational limitations and areas of operation**

In the unmanned aircraft sector, most of the operations are typically non-aviation-centric and even most commercial operators do not consider themselves as aircraft operators; they just want to use a tool for their works.

All unmanned aircraft operations must be conducted within the zones defined by the competent authority, and respect the defined limitations.

For areas with very high population density and/or critical infrastructure, the BCAA should define areas where only limited or no operations at all of unmanned aircraft are permitted.

### **Appendix 1**

#### **Distance from uninvolved persons on the ground**

The risk to persons on the ground is mitigated by requiring a safe distance with respect to persons on the ground unless they are involved in the operation and under the control of the operator.

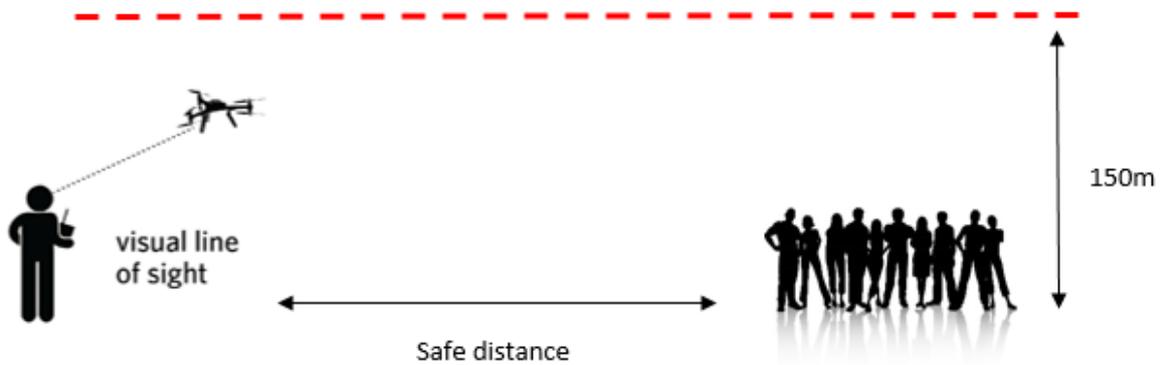
- Flights over crowds are not permitted;
- The minimum horizontal safe distance is 50m
- The pilot is responsible for the safe operation and safe distance from uninvolved persons and property on the ground;

#### **Separation from other airspace users**

To separate unmanned aircraft operations from normal manned aviation, operations need to be performed in direct VLOS where the pilot is capable of and responsible for ensuring separation from other airspace users.

- Only flights in direct VLOS of the pilot are allowed;

- An unmanned aircraft shall have a system ensuring that it limits its performances to acceptable values, in particular that it cannot operate at a height exceeding 400ft (122m) above the ground or water.
- Unmanned aircraft flights is not permitted in areas near airports (3miles or 5 kilometers)
- Unmanned aircraft flights is not permitted over yellow roof buildings
- The pilot is responsible for the safe separation from any other airspace user(s) and shall give right of way to any other airspace user(s); and
- The pilot needs to have adequate pilot competence according to the performance of the unmanned aircraft.



### Pilot competency

The basic principle is that the pilot is responsible for operation and:

- shall give the right of way to other airspace users
- shall not be negligent or reckless
- needs to be fit to fly
- needs to check that the unmanned aircraft and the equipment are also fit to fly and
- is responsible for safety, privacy, security and environmentally compatible operation

### Commercial use of unmanned aircraft

The majority of expected commercial operators are not traditional aviation organisations but small and medium-sized enterprises using an unmanned aircraft or even a small fleet of unmanned aircraft as 'tool' to replace traditional equipment like cranes, or to replace dangerous activities like climbing on industrial infrastructure for inspections.

These users have no experience in performing safety risk assessments and they need simple solutions for standard activities like:

- media use in urban environment
- industrial inspections
- precision farming and monitoring
- infrastructure inspections (e.g. power lines)

In such cases, the operator

- Must create the appropriate operating manual for each one case
- Shall be performed according to the unmanned aircraft limitations
- Shall ensure that all involved personnel is sufficiently qualified and familiar with the relevant operational procedures and conditions
- Shall ensure the appropriate flight permits when it is required
- Before the initiation of any operation, the operator is responsible for collecting the required information for a safe flight

### Unmanned Aircraft Operator Permit to Fly

An Unmanned Aircraft Operator “Permit to Fly” is provided for each pilot or operator of unmanned aircraft, that wanted to fly in Bhutan, for private or commercial purposes.

### Expiration Date

Maximum “Permit to Fly” validity period is no more than 365 days

- For Bhutanese Pilots validity period, until next birthday date
- For Foreign pilots with work permit in Bhutan (Bhutan residence) until next birthday date or date of expiry of the residence permit (whichever is earlier)
- For tourists until the expiration date of Bhutan visa

	<p>འབྲུག་གི་པོ་མཐའ་འགྲུལ་དབང་འཛིན། འཛམ་གླིང་གི་འབྲུག་ལྗོངས་འགྲུག་གཞི་རྒྱུ་གཞི་ལྷན་ཁག། BHUTAN CIVIL AVIATION AUTHORITY Ministry of Information and Communications Royal Government of Bhutan Paro, Bhutan</p>	
Reg.# <b>999999</b>	Expiration Date <b>20270308</b>	
<h3>Unmanned Aircraft Operator Permit to Fly</h3> <p>This Permit to Fly is adequate for outdoor flights of unmanned aircraft, with maximum takeoff weight no more than 6 kilograms.</p>		
Name <b>PILOT NAME</b>	Nationality <b>COUNTRY</b>	
Date of Birth <b>88888888</b> ID or Passport # <b>00000000000000</b> Issuing Country <b>COUNTRY</b>		
Mobile Telephone <b>+975 17711771</b>	e-mail <b>uav_aviator@aviation.com</b>	
Holder Signature	Date of issue <b>20260302</b>	
<small>Post Box No. 1229, Tele # PABX: (975) 8 271347, Director: 271910, PA: 272828, Accounts: 272656, Flight Ops: 272395, Airworthiness: 272396, Aerodrome: 271911, FAX: 271909/271944 Email: aviation@druknet.bt</small>		

For obtaining the Unmanned Aircraft Operator “Permit to Fly”, minimum age is 18 years. The pilot must submit appropriate application in person and show the unmanned aircraft or drone in the office of BCAA (Paro Airport, Bhutan)

The “Permit to Fly” is strictly personal and not borrow or granted to other person



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 བརྒྱུན་དང་བརྒྱུད་འབྲེལ་ཚན་ཁག། དཔལ་ལྷན་འབྲུག་གཞི་རྒྱུ་།  
**BHUTAN CIVIL AVIATION AUTHORITY**  
 Ministry of Information and Communications  
 Royal Government of Bhutan  
 Paro, Bhutan



**Drone Operator Registry Application**

(Fill up all in UPPERCASE as in passport or ID card)

Name \_\_\_\_\_

ID or Passport # \_\_\_\_\_ Country of Issue \_\_\_\_\_

Nationality \_\_\_\_\_ Date of Birth \_\_\_\_\_

Mobile Telephone \_\_\_\_\_ e-mail \_\_\_\_\_

I am aware of flight Drone Regulation of Bhutan and I agree with terms and conditions thereof.

Application Date \_\_\_\_\_ Applicant signature \_\_\_\_\_

do not write below the

Reg.# \_\_\_\_\_ Date \_\_\_\_\_

Remarks \_\_\_\_\_

Post Box No. 1229, Tele # PABX: (975) 8 271347, Director: 271910, PA: 272828, Accounts: 272656, Flight Ops: 272395,  
 Airworthiness: 272396, Aerodrome: 271911, FAX: 271909/271944 Email: aviation@druknet

**BCAA and the permit to fly**

The BCAA with this process knows

- All operators are aware the Bhutan Unmanned Operation Regulation
- Who is responsible for each unmanned aircraft flights in Bhutan
- The unmanned aircraft will fly into Bhutan not exceeding MTOW of 6 kilograms

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The 'area' or 'airspace' of operation determines the severity of an unmanned aircraft crashing or out of control. To mitigate the risk for people on the ground, the operation should be performed with adequate safe distance. The pilot would ensure adequate protection of other people.

## Drone Operations

## Part 3 Internal Procedures

**No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another**

Drone operator/pilot comes to BCAA offices with his own drone and interested to fly at Bhutan.

BCAA officer

- Ask for ID card for Bhutanese or Passport for foreign pilot (minimum age 18 years)
- Inspect the drone and check the weight (maximum 6 kg) included fuel, batteries and camera
- Gives to the applicant a copy of Bhutan Drones Regulation Part 1 and 2.
- Gives to the applicant the standard BCAA application form (page 5) and ask the applicant to fill the form in all fields with legible, block letters (as per ID or Passport)
- The BCAA officer makes a copy of the passport (main page and Bhutan VISA page) and work permit or a copy of Bhutanese ID
- Checks the accuracy of the data on application form
- The BCAA check whether the applicant has the oldest recording in the “Drones Operator List in Bhutan” and possible comments
- If there are no negative comments the employee continues the “Permit to Fly” issuing process
- Filled in the “Permit to Fly” of the applicant and prints
- Ask the applicant to verify the information in the “Permit to Fly” and sign
- The BCAA officer made the appropriate endorsement in “Drones Operator List in Bhutan”

## Drone Operations

## Part 4 Supporting

**No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another**

### Airliners

All airlines operating air services to the airports of Bhutan should make announcement during inbound flights to the passengers (20 min before landing) as follow:

**In the Kingdom of Bhutan is allowed to fly unmanned aircraft or drones only after specific authorization.  
If you carry an unmanned aircraft or drone you should contact airport security authorities for further information.**

### Airport Customs

Paro Airport custom control

**In the Kingdom of Bhutan  
unmanned aircraft is allowed to fly  
Only after specific authorization  
For additional information contact the Custom Control**

### Terrestrial entrances of Bhutan

In the three terrestrial entrances of Bhutan (Sign in English)

**In the Kingdom of Bhutan  
unmanned aircraft is allowed to fly  
only after specific authorization  
For additional information contact the Custom Office**

## Drone Operations

## Part 5 Training

**No person may operate an aircraft in a  
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The Bhutan Civil Aviation Authority should develop training program (2 hours presentation)

With this program will be trained the Police, Army and Custom officers.