

Service requirements – Tuv and Bulgan provinces

LIFT pilot project for drone-based postal delivery and middle-mile connectivity in Mongolia

1 Introduction and background

1.1 Project overview

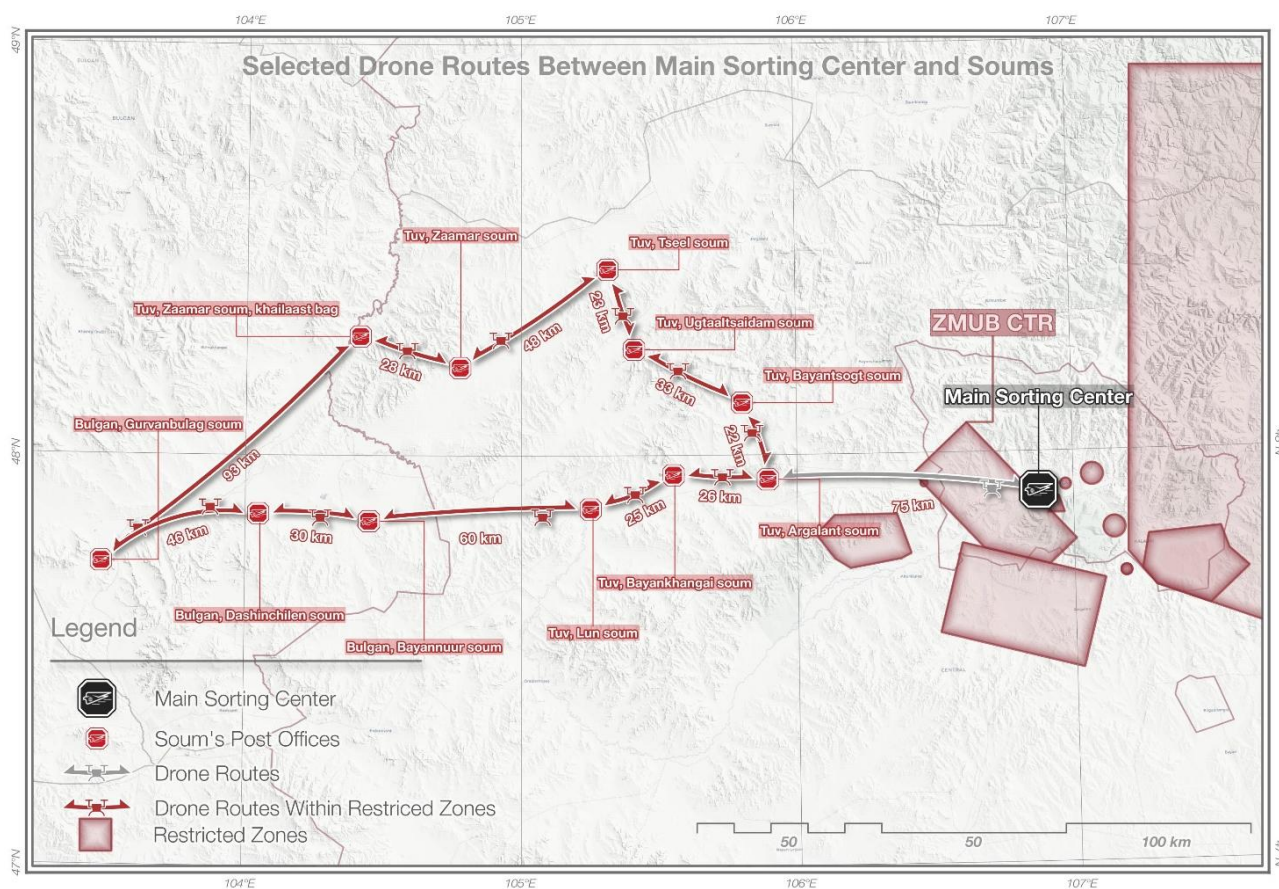
The UPU, as part of a project entitled “Last-mile innovation through flight technology” (LIFT), seeks to engage a qualified drone technology provider to plan, deploy and operate a postal drone delivery pilot project in Mongolia in partnership with Mongol Post, Mongolia’s designated operator.

1.2 Objective

The purpose of the pilot project is to demonstrate the operational viability of drone-based middle- and last-mile delivery in Mongolia, connecting remote post offices in various *soums* (districts) of the Tuv and Bulgan provinces with the main sorting centre in Ulaanbaatar (see figure 1).

This pilot project will generate data and insights to inform the potential expansion of drone logistics throughout Mongolia’s postal network.

Figure 1 – Illustration of potential route for the pilot project



The route depicted in figure 1 is for illustrative purposes only; the final routeing will be determined by the Vendor and must include all designated points listed in table 1.

1.3 Contract model

The contract model shall be “done as a service”. The Vendor will own, operate and maintain the entire drone fleet and associated systems. Mongol Post will provide ground infrastructure, postal staff for cargo loading, unloading and battery change/drone refuelling, if necessary, and site access.

2 Operational area and route description

2.1 Area of operations

- Country: Mongolia
- Primary region: Tuv province and parts of Bulgan province
- Origin hub: main sorting centre in Ulaanbaatar
- Route configuration: multi-destination delivery loop covering 11 post offices

2.2 Route details

The route forms a loop originating and terminating at the main sorting centre in Ulaanbaatar, with the following stops:

Table 1 – Locations of all post offices to be included on the pilot project route

Post office code	Post office name	Latitude	Longitude
MSC	Main sorting centre, Ulaanbaatar (origin/end)	49.90405842	106.8741937
PO1	Tuv, Argalant soum	47.93984278	105.8933486
PO2	Tuv, Bayankhangai soum	47.95186534	105.5518762
PO3	Tuv, Lun soum	47.86944295	105.2505825
PO4	Bulgan, Bayannuur soum	47.84008641	104.4480036
PO5	Bulgan, Dashinchilen soum	47.8570176	104.046705
PO6	Bulgan, Gurvanbulag soum	47.73845955	103.4806418
PO7	Tuv, Zaamar soum, Khailaast bag	48.28950826	104.4133339
PO8	Tuv, Zaamar soum	48.21384836	104.7773934
PO9	Tuv, Tseel soum	48.45269667	105.3150606
PO10	Tuv, Ughtaalsaidam soum	48.25760814	105.4108485
PO11	Tuv, Bayantsogt soum	48.12670755	105.802274

If all relevant permissions cannot be obtained, the Vendor will be obliged to propose an alternative route corresponding as far as possible with the project objectives.

2.3 Characteristics of the terrain

The terrain is mostly hilly, with an average altitude of 1,000–1,400 m above mean sea level and frequent climbs/descents averaging around 200 m. The terrain type is open steppe with favourable drone corridors, and mountain constraints in some segments.

2.4 Airspace considerations

Some routes may cross restricted or excluded airspace zones; the Vendor must plan routes to avoid these zones or obtain clearance for them.

3 Drone platform technical requirements

3.1 Drone technical specification

The selected drone platform must meet or exceed the following minimum technical specifications:

<i>Parameter</i>	<i>Minimum requirements</i>
Aircraft type	VTOL ¹ or multirotor
Propulsion type	All types
Cargo release	On-ground cargo loading and unloading
Payload capacity	Minimum 20 kg
Cargo volume	Minimum 0.1 m ³
Maximum take-off weight	Up to 150 kg
Range	Minimum 100 km (single charge/fuel load)
Endurance	Sufficient to fly a minimum distance of 100 km
Wind resistance	Resistance to gusts of at least 12 m/s
Operating temperature	Operable in temperatures of at least –20 to +50°C
Landing pad requirement	Up to 15 x 15 m
Navigation	Minimum: – GPS/GNSS² – RTK³, VIO⁴ or other positioning system – Cameras and vision processing – Downward LiDAR⁵/landing cameras/rangefinder
Communication	Minimum: – Radio – Cellular 4G/5G Preferably also satellite link
Safety systems	Collision avoidance, parachute recovery system, remote ID, geofencing

¹ Vertical take-off and landing.

² Global Positioning System/Global Navigation Satellite System.

³ Real-time kinematic.

⁴ Visual-inertial odometry.

⁵ Light detection and ranging.

4 Operational requirements

4.1 Assumptions

For this pilot project, it is assumed that the drone will operate point-to-point between post offices, carrying a mixed postal cargo, i.e. letters, documents, small parcels and packets, with payload quantities varying by post office according to actual mail volumes. The drone will be based at the main sorting centre and will fly to each local post office in the loop to load and deposit the payload, with battery changes or refuelling occurring at local post offices, where necessary.

All handling tasks (payload transfer, battery change or refuelling) will be performed by Mongol Post staff at each office. The entire operation will be coordinated closely with Mongol Post, with designated landing and take-off zones cordoned off during the agreed launch and landing windows.

4.2 Flight schedule

- Number of UAS: minimum one drone.
- Frequency: four flights per week, whereby one flight means a full loop.
- Estimated flights per month: minimum 16.
- Actual flight frequency will be determined with Mongol Post and the Civil Aviation Authority of Mongolia (MCAA) during preparation of the pilot project. The determined frequency will be based on Mongol Post's operational needs, airspace availability, weather conditions and equipment capacity.
- Operating period: The Vendor must be prepared to execute the project from February to September. The detailed schedule will be contingent upon regulatory, operational and weather-related factors and must be adapted to Mongolia's climatic conditions, in full consultation with and subject to the approval of the contracting authority, the UPU and Mongol Post.

4.3 Responsibilities

- The Vendor shall operate the drone end-to-end throughout execution of the pilot project, performing all actions required for safe, efficient and successful operation.
- The Vendor is obliged to engage with the MCAA early in order to build a value-oriented safety case for the operation.
- Although insurance coverage for drone operations is not currently mandated under Mongolian law, the Vendor is expected to obtain appropriate insurance to cover potential risks associated with the operation.
- The Vendor shall obtain a radio communication licence.
- Mongol Post staff will handle the loading and unloading of cargo at each post office and will provide necessary support in remote locations.

4.4 Ground infrastructure assessment

The post offices are equipped with the ground infrastructure listed below. The Vendor shall be responsible for thoroughly evaluating these existing conditions and, where necessary or appropriate, implementing enhancements (e.g. landing pads, wind barriers) to ensure optimal operational performance.

Overview of currently available infrastructure:

<i>Element</i>	<i>Main sorting centre</i>	<i>Post offices</i>
Landing zone area	15 × 15 m available	15 × 15 m available
Overhead obstructions	None	None
Surface	Concrete/asphalt/gravel	Variable; portable landing pad may be required

<i>Element</i>	<i>Main sorting centre</i>	<i>Post offices</i>
Shared use	Shared with parking area/loading dock	Shared with parking area/loading dock
Wind exposure	Partially sheltered	Potentially unsheltered (open steppe)
Lighting	Adequate lighting for inspection	Adequate lighting for inspection
Cargo handling space	Available near landing zone	Available near landing zone
Staffing	24/7 + security guard	Part-time (eight hours) for changing batteries and cargo loading and dispatch
Electrical supply	220 V/10 A + 380 V/16–32 A (three circuits)	220 V/10 A only
Backup generator	Not available	Not available
Indoor space for battery charging	Shelf/desk space near socket available	Not confirmed
Indoor workspace for drone maintenance	Both desk/workbench and garage/workshop/hangar-type space available	Garage/workshop space available for large drones
Tools	None	None
Maintenance area access	Easy access, double garage doors – 3 m wide	Not specified
Secure storage	Both small (closet/cabinet) and large (garage/warehouse) storage available. Cameras and locks present	Not available
Security measures	Full: locked building + security guard + CCTV + fenced perimeter	Not confirmed
Connectivity	5G + 4G/LTE + optic fibre/Mobinet fibre	5G + 4G/LTE (post offices have their own 5G telecom)
Internet/Wi-Fi	Available	Not confirmed

The Vendor is expected to supply all necessary equipment to support the ground infrastructure essential for the successful operation of the drone delivery pilot project. This includes, but is not limited to, portable landing pads, portable wind barriers, backup generators, spare parts, toolkits for routine drone maintenance and repairs, and redundant communication architecture. This list is not exhaustive, and the Vendor should assess the availability of ground infrastructure based on the information from the table above. Furthermore, during phase 1 of the pilot project, the Vendor shall coordinate with Mongol Post to identify and confirm any upgrades – particularly with respect to security, electrical capacity and other relevant infrastructure – necessary to ensure the seamless implementation and execution of the pilot project.

5 Regulatory and legal requirements

5.1 Regulatory considerations

The Vendor shall comply with all applicable regulations governing unmanned aircraft operations in Mongolia:

- MCAA Part 101;
- MCAA Part 102;
- associated forms and documents.

Throughout the preparation and execution of the pilot project, the Vendor shall coordinate closely with the MCAA, other regulators, local bodies and relevant authorities.

Mongol Post and the UPU will lend their full support and cooperation to facilitate the timely acquisition of all necessary permits. Continuous engagement with regulators and proactive management of the permit process are mandatory to ensure uninterrupted and fully compliant operations.

5.2 Joint venture

The tender allows for the formation of joint ventures between a foreign Vendor and Mongolian companies. Bidders may establish such partnerships to leverage local expertise and resources and to meet the relevant legal and regulatory requirements in Mongolia. The UPU recognizes joint ventures as eligible entities and encourages collaboration that will promote the success of the pilot project.⁶

6 Weather and environmental constraints

The Vendor shall take Mongolia's weather constraints fully into account in planning and executing the pilot project. All flight schedules, system specifications, maintenance routines and safety margins must be adapted to temperature extremes, high winds and seasonal precipitation patterns.

7 Training requirements

The Vendor must deliver training for the involved Mongol Post staff to enable them to perform the necessary operations during the pilot project, including, but not limited to:

- drone technology and operational basics;
- safe loading and dispatch of the drone;
- battery upkeep, charging and change procedures (or potentially refuelling);
- safe drone storage procedures;
- ground handling and cargo handover protocols.

Important: An initial training plan will be provided by the UPU; however, the final scope must be verified and, if necessary, adjusted by the Vendor.

In addition, the Vendor will obtain training from Mongol Post to familiarize drone operators with the necessary postal operations.

8 Timeline

The Vendor shall deliver the following during and after the pilot project:

#	Milestones	Deliverable	Phase	Duration ⁷
1	Early engagement with the MCAA to obtain permits and flight authorization and build safety case	Complete permit application pack (all MCAA forms and supporting documents)	Pre-pilot	6 months

⁶ Mongolia currently requires the formation of joint ventures with local entities for drone-related activities. However, given the dynamic nature of the regulatory framework, this requirement may change in the future. Bidders are advised to consider this requirement as a guideline and good practice.

⁷ Given that the procedures for flight authorization and permit acquisition in Mongolia lack formal structure, the duration may fluctuate. This estimate is based on research and discussions with the MCAA.

#	Milestones	Deliverable	Phase	Duration ⁸
2	Set-up of ground infrastructure	Ground infrastructure assessment report with potential purchase/installation plan	Pre-pilot	6 months
3	Staff training	– Delivery of training curriculum and materials – Attendance record and competency sign-off certificate	Pre-pilot	
4	One month for test flights, necessary updates/upgrades and one month for scheduled operating flights	– Weekly operational logs – Monthly progress briefs	Pilot execution	2 months
5	Draft of summary of operations ⁹	– Performance report – Viability, practicality and business case scenario report	Post-pilot	2 months
6	Draft of recommendations for scale-up or route extension	Executive summary of scale-up options and implementation roadmap		
7	Final reporting	– Summary of operations – Recommendations for scale-up or route extension		

⁸ Given that the procedures for flight authorization and permit acquisition in Mongolia lack formal structure, the duration may fluctuate. This estimate is based on research and discussions with the MCAA.

⁹ The Vendor shall continuously monitor pilot performance and deliver detailed analytical reports encompassing comprehensive operational logs – including cargo volumes, flight metrics and incident records – alongside key performance indicators. These reports will provide the data-driven insights required to inform decisions on scaling up the drone cargo programme in Mongolia and assessing the cost-efficiency of operations.