Ministry of Health & Family Welfare
Government of India

OPERATIONAL GUIDELINES FOR USE OF DRONE TECHNOLOGY IN HEALTHCARE

OPERATIONAL GUIDELINES FOR USE OF DRONE TECHNOLOGY IN HEALTHCARE

Apurva Chandra
Secretary

सत्यमेव जयते

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली - 110011
Government of India
Ministry of Health & Family Welfare
Nirman Bhavan, New Delhi - 110011

MESSAGE

India is a home to geographical diversities and drones are gaining attention for their utility in last-mile connectivity. Drones in healthcare have immense potential as they can provide a rapid and safe logistics solution for transporting medical supplies and diagnostic samples in hilly & difficult terrains and provide rescue medication during disaster situations.

Drone technology has an immense potential to supplement the existing supply chain mechanism. It is envisaged to be a game changer In near future, for bridging the gap in healthcare logistics.

I hope this operable template will be adopted by States/UTs and will prove to be useful in carving out State specific roadmap for leveraging drone technology in healthcare for improved healthcare outcome.

Date : **24.01.2024**
Place : **New Delhi**

(Apurva Chandra)

आराधना पटनायक, भा.प्र.से.
अपर सचिव एवं मिशन निदेशक (रा.स्वा.मि.)
Aradhana Patnaik, IAS
Additional Secretary & Mission Director (NHM)

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली-110011
Government of India
Ministry of Health and Family Welfare
Nirman Bhawan, New Delhi-110011

MESSAGE

Drone technology has a proven record for transporting emergent supplies to the remote and inaccessible areas. It is a relatively new concept in healthcare and has the potential to improve health outcomes in disaster situations and rural remote healthcare settings.

Drones are currently being used in healthcare for the transportation of drugs/vaccines/ diagnostic samples. However, it will be possible to identify and define other use cases after implementing drones as a service by the States/UTs.

I am happy that drone as a service is being promoted under NHM and this operational guideline will be useful to the States/UTs during the implementation phase. States/UTs will have the flexibility of using the drone as a service tailormade to their requirement after undertaking a detailed cost-benefit analysis.

In this regard, a hub and spoke model is recommended with reverse logistics of diagnostic samples for sample transportation in challenging terrain for making the drone technology cost-effective.

Dated: 9th Sept., 2024

(Aradhana Patnaik)

Tel : 011-23063618, 23061097 E-mail : asmd-mohfw@nic.in

SAURABH JAIN, IAS
JOINT SECRETARY
Tele : 23062870
E-mail : js.policy-mohfw@gov.in

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली–110011
Government of India
Ministry of Health & Family Welfare
Nirman Bhawan, New Delhi - 110011

MESSAGE

Drones are expected to play wider roles by offering a time-efficient mode for delivering life-saving medications to far-flung and remote locations in India. 'Leaving no one behind' is the core principle of National Health Policy 2017. Availability, accessibility, affordability of quality healthcare are the major barriers for attaining health equity.

Drones are known for their rapid, cost-effective, and safe delivery of goods even to hard-to-reach terrains compared to other air transportation systems. Drone operations are leapfrogging the last-mile logistics solution for transporting medical supplies in hard-to-reach areas, thus reducing urban-rural disparity.

Using drones to deliver medical supplies to remote / difficult to reach areas offers an innovative approach to addressing longstanding issues of healthcare availability and accessibility in our efforts to attain 'Universal Health Coverage'.

(Saurabh Jain)

Maj Gen (Prof) Atul Kotwal, SM, VSM
MBBS, MD (PSM), PDF (Epidemiology),
FRCP Edin, FAMS, FIPHA, FIAPSM
Executive Director

National Health Systems Resource Centre
राष्ट्रीय स्वास्थ्य प्रणाली संसाधन केंद्र
Ministry of Health and Family Welfare
Government of India

Message

The healthcare supply chain is often disrupted in hard-to-reach and hilly terrain leading to denial of health services to the affected community. Drone technology can help in achieving health equity among the population by providing essential supplies to remote locations. The usage of drones in the healthcare system is a relatively new domain and can be leveraged for disease surveillance, telemedicine and other use cases.

The operational guidelines developed by MoHFW will help the State Health Department in incorporating drone technology into the public healthcare system. It is envisaged that this will also generate employment opportunities. Promoting drone technology will result in the development of an ecosystem of drone operations in the country leading to self-reliance in alignment with the Govt policy of *Make-in-India*, *Start-up-India* and *Atmanirbhar Bharat.*

I am sure that the guidelines will help the States/UTs in adopting the drone technology under NHM.

(Maj Gen (Prof) Atul Kotwal)

NIHFW Campus, Baba Gang Nath Marg, Munirka, New Delhi - 110067
(T): 011 - 2610 8983, E-mail: atul.kotwal@nhsrcindia.org

TABLE OF CONTENTS

Appendices

OPERATIONAL GUIDELINES FOR USE OF

DRONES TECHNOLOGY IN HEALTHCARE

Introduction

1. An unmanned aircraft system (UAS), commonly known as a drone, is a remotely piloted aircraft system without a pilot on board, which can be pre-programmed to perform automated or autonomous flights. 'Drones' are gaining attention in recent times for their utility in last mile connectivity especially in hard-to-reach difficult terrains. Drones in healthcare have immense potential as drone operations can provide the rapid and safe logistics solution for transporting medical supplies and patient samples in hilly & difficult terrain and also in disaster situations like earthquake, landslides or floods, where timely emergency medical supplies can save many precious lives.

2. Unmanned aerial vehicles (UAVs) or drones are increasingly explored as a solution to transport challenges for medical goods, including emergency blood supplies, vaccines, medicines & diagnostic samples, particularly for "last mile" delivery. Drones are also used for surveillance of disaster sites and areas with biological hazards, as well as in epidemiology for research and tracking disease spread.

3. Successful implementation of any health system change relies on a complex set of factors. In the case of UAVs, not only will the selected technology need to be appropriate for the distance, weight, and size requirements of the transported items, but it will need to operate within regulations, the concept must be embraced by stakeholders, financial resources need to be available, human resources must be in place, and operational procedures must be developed to effectively work within existing structures. When these aspects are not considered, operations can be delayed, inefficient, or fail entirely. In short, as with any intervention, the impact of UAVs on the broader health system should be considered before implementation.

4. ICMR has already developed a guidance document on the 'Use of Drones in Healthcare' **(Appendix 'A')** which gives the procedure for obtaining regulatory approvals, selecting suitable drone model and criteria for choosing take-off and landing points for drones, type of medical supplies which can be delivered using drone, preparation of carrier boxes, loading & unloading of carrier boxes, quality checking of the medical supplies pre & post flight, human resource requirement, data recording and management for analysis and validation purpose, handling any unforeseen events during field observations etc.

5. Drones are increasingly being tested for healthcare purposes around the globe. It is a tool complementary to existing transport systems offering advantages over traditional approaches in specific circumstances. How and where drones optimally fit into health systems is still being determined and will depend on local needs and resources. Drones present a tremendous opportunity to address supply chain shortcomings in the healthcare sector, reducing stockouts and wastage. Deaths due to diseases such as dengue, conditions like postpartum haemorrhage and loss of blood due to accidents can be addressed through faster responses, higher-quality products, and better availability.

6. States like Meghalaya, Arunachal Pradesh, Uttarakhand & Himachal Pradesh have undertaken field trials using drone technology for delivery of emergency medical supplies and transport diagnostic samples in reverse logistics, due to the inherent geographical challenges and limitations in last mile connectivity. Use of drone technology in healthcare can be classified broadly in three segments namely, pre-hospital emergency care, expediting laboratory diagnostic testing and disease surveillance. Use of drones in healthcare can save lives in hilly & difficult terrain and in disaster situation.

7. Since the usage of drones in the healthcare system is relatively new arena it would be prudent to lay down guidelines from a health systems perspective for their effective, efficient and safe usage. The economic evaluation will be in-built as and when the data are available for analysis.

Objective & Scope

8. The objective of the document is to spell out the application of drones in **'Hub & Spoke' service delivery model** and the phase wise implementation, initially for limited use (for emergency supplies and patient sample collection) and later for scaling up operations in the future based on the states experience.

Regulatory Approvals

9. Operation of drones require mandatory registration at the **Digital Sky platform** of Ministry of Civil Aviation (MoCA) for obtaining a Unique Identification Number (UIN) before using a drone (https://digitalsky.dgca.gov.in/home). The drone operator has to submit the detailed flight plan with the exact coordinates online on the DigitalSky platform for obtaining permission before start of operation. The regulatory provisions have been listed out in the 'New Drone Rules - 2021' and its subsequent amendment issued in 2022 **(Appendix 'B')**. The DGCA enlisted drone models and list of the certified drone service provider is available at the DigitalSky platform **(Appendix 'C')**.

Category of Commonly used Drones

10. Drones have been classified into different categories and sub-categories based on their configuration and Maximum Take-off Weight (MTOW). The drones are classified into Nano (Weighing less than or equal to 250 gms), Micro (Weighing more than 250 gms but less than or equal to 2

Kgs), Small (Weighing more than 2 Kgs but less than or equal to 25 Kgs), Medium (Weighing more than 25 Kgs but less than or equal to 150 Kgs) & large (Weighing more than 150 Kgs). The drones commonly used for logistics supply chain are the Small & Medium category of drones having a **payload capacity of 2 - 5 Kgs.**

11. The commonly used drones are the Vertical Take-off & landing (VTOL) rotorcraft drones having more than two rotors; the advantage with this type of drone is the simpler rotor mechanics required for flight control. They are most often used for reverse logistics of commodities, i.e., delivering commodities by landing on the grounds of a destination facility, where it then picks up a package, which it returns to a main base. Such type of drones can also be used for transport of diagnostic samples from remote health facilities and to deliver them to a hub diagnostics lab.

Flying Zones & Altitude Restrictions

12. The Drone Rules -2021 (Published in Gazette of India dated 25 August 2021 vide CG-DL-E-26082021-229221) has defined the various zones for drone operations [Part II-Sec. 3(i)] as follows:

RED ZONE	The airspace of defined dimensions, above the land areas or territorial waters of India or any installation or notified port limits specified by the Central Government beyond the territorial waters of India, within which the unmanned aircraft system operations **shall be permitted only by the Central Government.**
YELLOW ZONE	The airspace of defined dimensions above the land area or territorial waters of India within which unmanned aircraft system operations are restricted and shall require permissions from concerned Air Traffic Control Authority. **The air space above 400 Ft (120 M) in the designated green zone and the air space above 200 Ft (60 M) in the area located between the lateral distance of 8 – 12 Kms from the perimeter of an operational airport.**
GREEN ZONE	The airspace of defined dimensions above the land areas or territorial waters of India, upto a vertical distance of 400 Ft (120 M) that has not been designated as red or yellow zone in the airspace map for unmanned aircraft system operations and the airspace upto a vertical distance of 200 Ft (60 M) above the area located between a lateral distance of 8 – 12 Kms from the perimeter of an operational airport.

13. States/UTs may opt for a DGCA certified registered drone service provider available in GeM portal **(Appendix 'D')** . The details of the drone service provider in the GeM portal have been masked to ensure transparency and fair competitiveness. States/UTs may avail the services available through GeM for engaging a suitable drone service provider as per the requirement. The outsourcing of the drone service provider for delivery of medical supplies and transport of samples, is a cost-effective option when compared to owning & maintaining drones. Engaging a registered service provider also helps in obtaining all regulatory clearances from Ministry of Civil aviation (MoCA)/DGCA as per Drone Rules-2021 and its subsequent amendments.

14. The checklist for obtaining regulatory approvals is given in the **DigitalSky** web page of MoCA/ ICMR guidance document. The below table outlines the key considerations, advantages and disadvantages of procuring drones as an asset (fleet), versus outsourcing the drone delivery service to a logistics partner.

Resource Element	Inhouse/Ownership	Outsourcing/PPP
Upfront Investment	Medium to High	Low to Medium
Procurement of Equipment	Required	Not required
Dedicated HR to run the operations (Drone Pilot, Technician, Coordinator)	Required	Not required
Regulatory Compliance	Required	Not required
Maintenance & Repair	Required	Not required
Manage liabilities & Insurance aspects	Required	Not required Not required
Savings/Cost efficiency	Long term	Short/Medium term

Payload considerations

15. The range and payload capabilities of drones are predetermined by their size and the power source they use. The capacity of the lithium polymer (LiPo) battery used in the drone should be chosen carefully and must match with the flight range, power rating, motor voltage requirement etc. Most common drones in operation give an **average flying time of 30-35 min.** Additionally, stable electricity supply, battery-charging capabilities and battery swapping at different destinations (e.g., health facility, outreach post) are important considerations to ensure that drones can operate without interruption.

16. The trade-off between flight distance, the amount of weight a UAV (Drone) can carry, and cost is an important factor while considering delivery of medical supplies by using drone. Presently delivery of medical supplies using UAVs are restricted to lightweight items (less than 5 kg) and for relatively short aerial distances. Drones that are medium or large category must fly in compliance with the conditions outlined in the DGCA's operator permit and requires more resources and strict regulatory approvals. Given the trade-off between weight, distance, and cost, UAV transport will likely supplement medical supply chains, rather than replace road transport. **Drones are best suited for hard-to-reach areas/ hilly & difficult terrain where conventional transportation system is often delayed or non-viable.**

17. An important consideration when choosing a drone platform is cold-chain capacity. Most to-date drone projects use passive cooling (insulated cargo boxes that use icepacks or cool water packs) to maintain vaccine temperatures (2-8 degrees Celsius) during flights.

18. Temperature sensitive vaccines/drugs and supplies can be transported using the insulated cargo boxes using the drone, however the temperature integrity aspect needs to be monitored closely during such drone operations. The temperature sensitive cargo may be insulin injections, chemotherapy drugs, vaccines, and other cold chain supplies.

Contract Model Under NHM Framework

19. The outsourcing contract model is recommended over the ownership model as explained earlier during the initial stages. States/UTs may invite quotes for **per km (Aerial Distance Criteria)** basis and submit proposals with anticipated budget along with detailed justification including cost benefit analysis and Hub & Spoke of service delivery under category **HSS.7 - Other initiatives to improve access (Sl. No. 179 - under scheme/activity PPP budget head.** State can also use the budget head Sl. No. 179 - under the column "Diagnostics" if it pertains to use of Drone technology for diagnostic sample transportation. **Budgeting may be done for anticipated rate per km (aerial distance) x anticipated total Kms in one day x total number of days in a year as envisaged for drone operations.** Ministry of Health and Family Welfare shall appraise the proposals received from States/UTs and approvals/ support will be provided based on the discussion held during the NPCC meeting.

20. State/UT may also explore other financial models as per their local geography and identified use cases for engaging the drone services. Models of cross-subsidization for using drone services centrally in a state by tasking a drone service provider from the empanelled list with a monthly/ yearly minimum assured volume of task may also be a cost-effective alternative as compared to the outright engaging a drone service provider full time in the initial stages.

Hub & Spoke Model

21. DHs/CHCs having open space for drone operations (Minimum 5M X 5M Flat Top) with a control room and having established robust supply chain for drugs, consumables & diagnostic reagents or having nearby drug warehouse can be designated as 'Hubs' with having the PHCs/ SHCs in the flight range of the drone as per its payload carrying capacity.

22. An initial mapping needs to be conducted to identify the health facilities that experience accessibility constraints which leads to lack of access to the various flagship programmes (Immunization, Nutrition, Diagnostics, Drugs, health programmes like TB, MCH, etc.) and emergency care (Supply of Blood units, Anti Snake Venom, Thrombolytic agents, etc.). The hubs may be planned so as to cover all the districts in the state based on the flight range limitations of the drones to ensure availability of fall-back mechanism for restoration of supply chain during disaster situations. **Drones should be used as a value addition service and not as a substitute to the existing mode of transportation.**

Roles & Responsibilities of Stakeholders

23. The **service provider in the PPP mode** shall establish a command operation centre at the designated hubs (DHs/SDH/Blood bank/Drug Warehouse) having the following

(a) Two number of drones with VTOL capabilities
(b) Category of drone commensurate with the payload capacity with suitable medical carrier box/ cold chain vaccine carrier.
(c) Two qualified (Remote Pilot Training Organisation Certified) drone pilots with minimum six months of Beyond Visual Line of Sight (BVLOS) flying drone experience.
(d) One project manager/ facility coordinator at each hub of drone operations.
(e) Repair & maintenance related equipment & consumables/ accessories.
(f) Training to HCW in receipt of medical stores / dispatch and emergency protocol.
(g) IT support- Desktop- 01, laptop-01 with latest configuration and minimum 512 MB storage with all computer peripherals including printer facility.
(h) Stable internet connectivity- Broadband either wireless or FTTH for uninterrupted service (preferably two separate telecom service providers as standby to each other).
(i) Furniture & Fitments- electrical points for the space provided, for setting up of command centre and preparation of a flat top secured area (5 Mtr X 5 Mtr) for drone operations.
(j) Ensure compliance with drone regulation by obtaining necessary permits, completing all necessary procedures, and providing timely information to the civil aviation authority (or equivalent).
(k) The drone operations will be undertaken in the **Green Zone or Yellow** Zone as per the air space map issued by Ministry of Civil Aviation and the permissible altitude & distances from the perimeter of the airfield, as specified in the DigiSky platform, with requisite regulatory approvals.

24. The **State health department** shall provide the following to the service provider for carrying out drone operations. Appropriate service level agreements may be formulated with adequate safeguards.

(a) Space with the premises of the District Hospital/ Sub-District Hospital/ Drug Warehouse/Blood Bank.
(b) One pharmacist for checking & weighing the medicines/ medical supplies before dispatch and collection of the return diagnostic/ lab samples.
(c) Point for electricity with separate meter (the electricity bill is to be paid by the service provider)
(d) Point for water supply
(e) Nodal officer for monitoring of the programme.

25. The service provider shall ensure that the designated hub or command centre has proper battery charging facility, Fire appliances, and a repair workstation. The staff should be trained in the fire drill periodically for any exigencies. As per ICMR guidelines a drone pilot at the spoke (PHC/SC-HWC) is recommended however, the same may not be practical. The healthcare worker at the PHC/SC-HWC can be trained in switching on & off of the drone, loading & unloading of medical supplies and communication with the hub drone pilot.

26. The drone take-off point, and landing point must be carefully selected and secured. The operation area should be having a flat top and well demarcated from the hospital visiting crowd for security purposes. A wind socket should also be planned for assessment of wind direction while launching the drone.

27. Training of healthcare workers at the spokes (PHC/SHC) is required for receiving the drone and removing the emergency supplies. The procedure for packing the medical supplies carrier box is given in details in the said ICMR guidelines. Training would also be required for packing of patient samples for transportation to the 'Hub'. A good communication system between the Hub & Spokes is required to be developed using the facility communication system. The training module **(Appendix 'E')** for healthcare workers is available at ICMR website (https://www.icmr.gov.in/idrone/index.html).

28. Indent for required medical supplies from all the spoke is required to be collected in advance for planning delivery of the supplies in a cost-effective manner. The principle of medical supplies forward and reverse logistics of diagnostic samples/blood sample should be incorporated while planning drone operations. Use-cases from field trials conducted in States is placed as **Appendix 'F'**.

29. The role of pharmacist at the hub would be to account & validate the indent of medicines & supplies received from the spokes, collect from DH dispensary/medical stores, packaging & weighing the medical carrier box for dispatch. Similarly, healthcare personnel designated & trained at the spokes should be familiar with packaging and weighing the diagnostic blood/ sputum samples during the return flight.

30. The facility manager (Service Provider) at the hub or the command centre should record all activities associated with drone operations and maintain record of flight details (success/ failures), time logs, aerial distances covered, and the payload carried. The data generated over a period of time will be useful for establishing use cases and scaling up of drone operations in the future. data analysis and accounting. The facility manager will ensure monitoring and supervision of all the activities related to use of drone at the hub as per **Appendix 'G'.**

Institutional Framework for Governance and Management

31. Joint Secretary (Policy) will be the nodal officer in MoHFW for approval of the proposals under the Health Systems Strengthening. States/UTs shall submit the proposals related to use of drones in their respective jurisdiction with full justification and cost benefit analysis through the annual Programme Implementation Plans (PIPs). The following committees may be formed in the States/UTs to support and facilitate use of drones in healthcare

(a) **State Healthcare Drone Operations Coordination Committee (SHDOCC)**
The drone operations coordination committee (SHDOCC) may be constituted for effective governance, leadership and oversight to drone-based operations in the State. The said committee will meet for approving and dissemination of information for use of drone in healthcare in the state and will be the apex body for resolution of any representation or taking remedial measures as and when called for.

(b) The suggested members in the State Healthcare Drone Operations Coordination Committee (SHDOCC) are as follows. State may include any other member associated and required for facilitating the drone operations

- Principal Secretary, DoH&FW of the State (Chairperson)
- Commissioner of Police / Director General Police (IG)
- Mission Director, National Health Mission of the State
- Representative of Airport Authority of India (AAI) / Civil Aviation
- Representative from Home Department (MHA)
- Representative from State Transport Department
- UAV Service Provider or his representative

(c) **District Level Healthcare Drone Coordination Committee (DHDCC)**
The committee will closely monitor and supervise drone operations in the Area of Responsibility (AoR) and will meet at least once in a quarter to take stock of the situation or early as and when called for. The committee will discuss any administrative requirements and undertake sensitisation of the local community through local bodies where drone operations are envisaged.

- DM/SDM of the concerned District where hub is placed (Chairperson)
- Chief Medical & Health Officer of the District where hub is placed.
- Superintendent of Police (SP) District
- Representative from rural local bodies (Gram Panchayat/ Panchayat Samiti/ Zila Parishad).
- Representative from Local Youth Association/ Volunteer Group
- UAV Service Provider or his representative

Risk and Adverse Event Management

32. The drones may encounter system failure during their flight operations. Some possible emergencies due to system failure may be as follows

(a) Loss of data link communication
(b) Loss of GPS connectivity
(c) Autopilot software error/failure
(d) Loss of engine power
(e) Ground control system failure
(f) Intrusion of another aircraft into the UAV mission airspace.

33. The possible emergencies mentioned ante may not be a comprehensive list as it depends on the type of UAV model, air space events and crew performance. Many UAV have several failsafe options in case of failures or emergency situations. These include using methods of stabilization and an automated 'Return to Land' (RTL) or loiter mode. Other features include fail recovery software. Flying without these fail-safe mechanisms in place is not recommended. The specific fail-safe options available for each type of UAV should be outlined in the UAV documentation and Service level agreement. SOPs for the said emergency should be well documented and displayed as a checklist at the UAV command center for the drone operator.

34. In case of an event of drone getting lost, support from local police, district administration and community might help in successful retrieval of the drone. The drone operator should remain aware of the local political and social situation. Moreover, the operator needs to remain cautious about any suspicious activity in the district. Prior co-ordination with the State Intelligence Bureau (IB) may facilitate smooth drone operations.

35. The drone service provider should produce a valid insurance policy covering third party liability against accidental property damage and accidental body injury (including death) while undertaking drone operations. Add-on insurance cover may also be opted for payload (medical supplies) after assessing the approximate valuation, prior finalising the insurance cover. The insurance coverage clause may be recorded prominently in the service level agreement, with the drone service provider.

36. Whether is an important and poorly resolved factor that affects the drone-based delivery of medical supplies. Drones cannot fly in all weather, which impacts their reliability for time-sensitive operations. Air temperature, wind speed, precipitation, and other atmospheric phenomena adversely affect drone endurance, control, aerodynamics, airframe integrity, line-of-sight visibility, airspace monitoring, and sensors for navigation and collision avoidance. Drone operations when planned should consider the said limitations and cannot be applied universally. Weather data from Indian Meteorological Department can be used for assessment of the weather trend and good weather days for operation of drones in the specific areas.

37. The model Notice Inviting Tender for hiring a service provider in PPP mode for supply of emergency medical supplies using drone technology is placed as Appendix 'H'. States/UTs may refer to the suggested model NIT and contextualize the document to suit their specific local need.

Conclusion

38. As with any innovative health intervention, the sustainability of drone-supported Healthcare systems will depend on strong capacity building, an efficient impact monitoring and evaluation cycle and in-country commitment, including investment in drone regulations, project design and long-term ownership. Drone use offers the opportunity of improving healthcare, particularly in remote and/or underserved environments by decreasing lab testing turnaround times, enabling just-in-time lifesaving medical supply/device delivery, and reducing costs of routine prescription care in rural areas.

39. Drones will aid in the rapid, cost-effective, and safe delivery of emergency life-saving vaccines and medical supplies and transportation of patient samples in difficult and hilly terrains. Drones are becoming an increasingly popular tool in the health care industry. Though drones have many benefits, they also have several challenges that must be considered before using them for healthcare purposes.

40. How and where drones optimally fit into health systems is still being determined and will depend on local need and resources. Moreover, the sustainability of drone-supported Healthcare systems will depend on strong capacity building, an efficient impact monitoring and evaluation cycle and in-country commitment, including investment in drone regulations, project design and long-term ownership.

APPENDICES

Appendix	Document Type	Click the link to access the document / Page No
A	ICMR Guidance document for use of drones in healthcare.	https://www.icmr.gov.in/idrone/pdf_book/Guidance_use_drones_healthcare/mobile/index.html
B	Drone Rules-2021 Drone (Amendment) Rules 2022. Drone (Amendment) Rules 2023	https://egazette.nic.in/WriteReadData/2021/229221.pdf) https://egazette.nic.in/WriteReadData/2022/233331.pdf) https://www.civilaviation.gov.in/sites/default/files/2023-10/Drone%20%28Amendment%29%20Rules%2C%202023.pdf
C	DGCA certified drone operators list. Enlisted drone models in use on the DigitalSky platform.	(https://digitalsky.dgca.gov.in/certified_rpas https://digitalsky.dgca.gov.in/assets/files/EnlistmentDroneModels.pdfon
D	DGCA Registered Service providers for drone operations available on GeM portal.	https://mkp.gem.gov.in/services#!/browse/services_home_giss_dr26810283/open
E	ICMR Training module for drone-based delivery of medical supplies.	https://www.icmr.gov.in/idrone/index.html)
F	Use-cases from field trials conducted in States	Page 12
G	Flight Checklist	Page 13
H	Notice Inviting E-Tender	Page 14

Appendix 'F'

USE CASES VALIDATED DURING PILOT FIELD TRIALS IN FEW STATES

State	Payload Transported	Remarks
Manipur	• Covid-19 Vaccines, • Routine Immunization Vaccines (JE, MMR etc) • Stockout drugs required by the healthcare facilities. • Medical Supplies (Gloves, PPE kit etc)	• Implementing Agency: ICMR • Duration: 3 months
Nagaland	• Covid-19 Vaccines, • Routine Immunization Vaccines (JE, MMR etc) • Stockout drugs required by the healthcare facilities • Medical Supplies (Gloves, PPE kit etc)	• Implementing Agency: ICMR • Duration: 1 month
Uttarakhand	• Anti-tuberculosis Medicines	• Implementing agency AIIMS Rishikesh • Duration: 2 trials
Arunachal Pradesh	• Stockout drugs required by the healthcare facilities • Diagnostics samples	• Funding agency: World Economic Forum (WEF) • Duration: 1 year 3 months
Meghalaya	• Stockout drugs required by the healthcare facilities • Medical Supplies (Gloves, PPE kit etc)	• Funding agency: World Bank/ Government of Meghalaya through Meghalaya Health Systems Strengthening Project (MHSSP) • Duration: 10 months
Himachal Pradesh	District Mandi • Drugs and vaccines	• Implementing Agency NHM, Himachal • Duration: 5 trials
	District Lahaul & Spiti • Onward flight carried antibiotics, antipyretics, and multivitamins. • Return flight carried TB sputum samples, blood samples, and various diagnostic specimens	• Implementing Agency: ICMR • Duration: 1 month (ongoing)

FLIGHT CHECKLIST

PRE FLIGHT

At Office

- Aircraft Documentation
- NOTAM
- Local Regulation and permission
- Proximity to the airport
- Weather condition permits flying
- All batteries charged
- Flight gear check

In the field

- Scan area for obstacles e.g. take-off & landing site
- Wind check
- Daily flight report filled
- Assemble UAV, ensure screws are tight and propeller check
- Battery securely mounted and connected
- Ensure GPS fix
- Confirm mission flight plan
- Operators checklist (integrated)
- RC remote check
- Final airframe inspection
- Flight crew briefing e.g. flight mission and safety
- Final weather check before launch

DURING FLIGHT

After Launch

- Aircraft reached safe altitude
- Confirm observer has the aircraft in sight
- All systems green
- Satellite and GPS check
- Check telemetry
- Check battery remaining

Before Landing

- Ensure UAV flight done according to mission plan
- Scan landing area for any obstacles
- Wind check
- Observer briefing for landing
- All systems green

POST FLIGHT

After Office

- Power down UAV
- Remove and safely store batteries.
- Airframe inspection
- Check sensors/ aircraft to ensure any fault/ breakdown.
- Transfer data and flight logs
- Make logbook entry.

Back at office

- Flight and Maintenance Report
- Charge batteries
- SD Card cleaned and ready for use
- Airframe checked
- Data processed

NOTICE INVITING E-TENDER

<STATE > HEALTH AUTHORITY
ADDRESS

Phone No. : _____

E mail : _____

SERVICES RELATED TO SUPPLY OF EMERGENCY MEDICAL SUPPLIES USING DRONE TECHNOLOGY

(Submission of Bid through online)

Bid Reference No. : _____ **Dated :** _____

1. <Insert Name of State Procurement/Tender Inviting Agency with Full Address> has been requested by Government of <Insert name of the State> to supply emergency medical supplies such as vaccines, medicines, diagnostic samples and other supplies to and from remote areas that are not well connected through regular transportation networks at selected places using drone technology.

2. <State Name> hereby invites bids from eligible and qualified drone services provider registered by Government of India for providing services for transporting emergency medical supplies using drone technology as per the 'Schedule of Requirement'.

3. Intending Tenderer may download the tender document from the e-tender portal of Govt. of <State> at _____(website address). The submission of bids should only be through online.

4. Non statutory documents are to be submitted concurrently.

Sd./- Managing Director

SCHEDULE FOR RFP

Sl. No.	Event Description	Suggested Timeline
1.	Date of uploading of N.I.T. Documents (online) / Date of Issue of RFP Published on	D (Time)
2.	Date of Pre-Bid Meeting with the intending Tenderers in the <Place of Meeting with full address & Pin Code> OR Through Online Meeting.	D + 7 days
3.	Bid submission start date (Online)	D + 10 days
4.	Last Date for submission of proposals [Bid submission closing (Online)] Detailed list of documents annexed at Annexure I to V. Any wrong or misleading information provided by the Tenderer during submission of bids shall lead to summary cancellation of bid and may lead to blacklisting for at least 2 years. Each scanned document should have an index page indicating the name of the documents enclosed with page number.	D + 21 days
5.	Last date of submission of all hard copies of the documents uploaded in e-tender during bid submission except PRICE BID at the registered office of <Place>.	D + 21 days
6.	Bid opening date for Technical Proposals (Online)	D + 22 Days
7.	Bidders to remain present at <Place with address > for identification of the documents for the technical bid evaluation OR Through Online using weblink < mention web link address >	D + 22 Days
8.	Functional demonstration of the services [If required by TIA]	D + 23 Days
9.	Opening of Financial Bid (Online)	D + 30 Days
10.	Proposal Validity	180 Days from proposal submission date
11.	Method of Selection	Least Cost (L1) basis financial bid would be opened only of bidders qualifying technical bid

SECTION I:
INSTRUCTIONS TO TENDERERS

Important information at a glance

(The item suffixed by "E" in bracket indicates Eligibility Criteria for a bidder)

A. Tender Schedule Details

SCHEDULE	Scope of Work
SCHEDULE – I	Services related to supply of emergency medical deliveries such as vaccines, medicines, diagnostic samples and other supplies to and from remote areas that are not well connected through regular transportation networks at selected places using drone technology (UAV)

B. Tender Fees: Exempted

C. Technical Bid (E) - As per Annexure I

D. Financial Bid (E) - As per Annexure II

E. Detailed Proposal/Project Report (E)

F. Monitoring & Evaluation Checklist as per Annexure III

G. Flight Checklist as per Annexure IV

H. Drone service Pre-requisite (E) - As per Annexure V

I. Bid Security Declaration (E) Submission of Bid Security declaration **(As per Annexure VI)** and signing of Agreement is mandatory as per extant procurement rules.

J. Annual Turnover requirements (Desirable) - The agency should have annual turnover of minimum Rs. 20 Lakh on an average of two financial years preceding the current financial year.

K. Timeline for start of Provision of services from the date of issuance of Award of Contract/ Work Order

SCHEDULE	ITEM	TIME
SCHEDULE – I	Services related to supply of emergency medical deliveries such as vaccines, medicines, diagnostic samples and other supplies to and from remote areas that are not well connected through regular transportation networks at selected places using drone technology (UAV)	30 Days

Payment Terms

I. General Terms

1. <Procurement Agency/TIA> may like to get the Services related supply of emergency medical deliveries such as vaccines, medicines, diagnostic samples and other supplies on per Km (aerial Distance) to and from remote areas that are not well connected through regular transportation networks at selected places using drone technology (UAV) for a period of _____ (Time Period) from the date of award of contract / or against separate Work Order.

2. The rates in the contract will be valid for _____ from the date of award of contract.

3. The Tenderers should only quote in INR.

II. Payment terms _____ (To be specified)

Payment will be made upon satisfactory completion of services rendered and submission of invoices based on the flights and product deliveries completed on a monthly basis, according to the agreed deliverables and activities, and made against the purchase order/contract. Payment will be made within 30 days after receiving the original invoice and after the Project has reviewed and certified outputs and deliverables.

III. Basic Price of Service(s)

Services related to supply of emergency medical deliveries such as vaccines, medicines, diagnostic samples and other supplies would include transport cost of goods (Per Km of Aerial Distance), operations services, accessories & ancillaries, freight charges, manpower charges and any other applicable charges excluding GST during the contract (Specify duration). Applicable GST will be paid extra.

Service Up Time in Warranty

Working condition of drone for a minimum period of 354 days out of a period of 365 days. (i.e., 97% uptime)

The response time to any drone related service call should be not more than 6 hrs after call is logged. Call Log by E-mail/Fax. Time for rectification should not be more than 48 hours.

Maximum Downtime allowed without penalty: 72 hours. In case equipment is not useable beyond the stipulated maximum down time the supplier will be required to install alternative equipment for providing uninterrupted service.

Penalty beyond 72 hours downtime & if standby unit is not provided: Schedule I – Rs. 1000 per day per unserviceable drone

Liquidated Damages for Delayed Setting up of Services

The percentage of 0.5% of the Invoice price for each week or part thereof, of delay until actual delivery or performance, up to a maximum deduction of 5% of the Invoice price.

Experience and Technical Capacity

Bidder must have carried out drone related operations for transportation of logistics / related services in the country and has a license to operate and maintain drones as per the Ministry of Civil Aviation guidelines/rules.

General Instructions

a. Bidders are requested to study the tender document, terms & condition carefully before submitting their bids. Submission of tender shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications.

b. Tender documents should be downloaded from the E-tender portal of Govt. of <State> at (website address). The submission of bids should only be through online.

c. All pages of the bid submitted must be signed and sequentially numbered by the Bidder. All information in the offer must be in English. Information in any other language must be translated to English. Failure to comply with this may render the offer liable to be rejected. In the event of any discrepancy between the offer in a language other than English and its English translation, the English translation will prevail.

SCOPE OF WORK AND DELIVERABLES

1. Summary of Scope of Work

1.1 The service provider will be expected to run routine and emergency deliveries of medical commodities such as vaccines, medicines, diagnostic samples and other supplies to and from remote areas that are not well connected through regular transportation networks.

1.2 The parts of the supply chain that will be serviced include but are not limited to immunization, blood, emergency supplies, diagnostics, medicines, and routine supplies.

1.3 The list of possible commodities to be carried include but are not limited to vaccines, medicines, blood units, and diagnostic samples.

1.4 The services to be provided are purely non-commercial in nature and will only apply for purposes in the public health ecosystem.

1.5 **Service provider shall establish** a command center consisting of the following

- 1.5.1 Two number of Drones with Vertical Take-off & Landing (VTOL) capability.
- 1.5.2 Category of drone commensurate with the payload capacity (_____ Kg) as required by the Tender inviting Agency (TIA) with suitable medical carrier box/ cold chain vaccine carrier.
- 1.5.3 Two qualified (Remote Pilot Training Organisation Certified) drone pilots with minimum six months of flying drone experience.
- 1.5.4. One Project manager/Facility Coordinator at each Hub of drone operations.
- 1.5.5 Repair & maintenance related equipment & consumables/accessories.
- 1.5.6. IT support – Desktop -01, Laptop -01 with latest configuration and minimum 512 MB storage with all computer peripherals including printer facility.
- 1.5.7 Internet Connectivity- Broadband either wireless or FTTH for uninterrupted service (preferably two separate telecom service providers as standby to each other).
- 1.5.8. Furniture & Fitments, electrical points for the space provided, for setting up of Command center and preparation of a flat top secured area (5 Mtr X 5 Mtr) for drone operations.

1.6 **Department of Health & Family Welfare shall provide the following**

- 1.6.1 Space within the premises of the District Hospital/Sub-District Hospital/Drug warehouse/Blood Bank.
- 1.6.2 One Pharmacist for checking & weighing the medicines/ medical supplies before dispatch and collection of the return diagnostic/ Lab samples.
- 1.6.3 Point for electricity with separate meter (The electricity bill is to be paid by the service provider)
- 1.6.4. Point for water supply.

2. Specifications of the Assignment

2.1 **Commodity packaging and storage specifications** and requirements and their cold-chain requirements are as follows: Cold Chain Items: Should be stored in a cold chain enabled box with temperature ranging from 2 deg C to 8 deg C. Non-Cold Chain Items: Should be stored in an air-tight sealed box, fitting properly in the drone carrier box.

2.2 The detailed list of health facilities (PHCs/SC-HWCs), with their GPS coordinates, that fall under_____<States to indicate the aerial distance covering the farthest spoke and within the flight range radius from the identified hubs (DHs/SDHs/CHCs/Warehouse/Blood Bank).

2.3 The Hubs identified by the <State> or under the pilot project for the said assignment (may change due to unavoidable circumstances)

Hubs Location	Drug Warehouse	Spokes Location	Diagnostic Lab	Blood Bank

2.4 The Service Provider is expected to consider all health facilities and health entities around <Name of the Hub>. However, only facilities falling under the green zone and yellow zone with requisite clearances and all regulatory approvals are allowed to be providing service. The type of facilities to be considered are PHCs, CHCs, SDHs, DHs, Blood bank, Drug warehouse, and any other relevant entities as decided by TIA. The Service Provider must classify all facilities mentioned in Para 2.3, within the scope of 'Hub & Spoke' Model as per zones defined by the relevant Authorities.

2.5 The hubs identified based on multiple factors including availability of supporting public health entities, availability of manpower, availability of space, etc by the TIA will be notified to the drone service provider. The Service provider must segregate the said locations into green, yellow and red zones as per the prevailing rules and regulations as notified by the Union Government of India from time to time and verified in the DigitalSky platform. Only those locations that fall in the green zone and yellow zone with requisite clearances and all regulatory approvals will be operationalized. The rest will depend on obtaining mandatory clearances from the relevant Govt. and regulatory entities.

2.6 The payload per flight will be within the weight consideration as per the service provider technical expertise, depending on weather limitations and other factors influencing the sortie during the period of operations. Service provider shall route flight plans with a schedule for the week in advance in a cost effective manner ensuring onward & reverse logistics. Emergencies supplies as life saving mission on recommendation of the officer-in-Charge (OIC) HUB (Medical Officer) will be undertaken by the service provider on need basis.

2.7 The mode of drone transportation required – bidirectional (Onward & Return). The propulsion and power system should be battery operated appropriate to the category of the drone.

2.8 Expected flight routes and frequency of flights between different points: The service provider should use the most cost-effective flight routes in alignment with Drone Rules – 2021 & its amendment thereafter. The frequency of flights will be as and when required basis or decided as per the load/task assigned by the OIC Hub.

2.9 The service provider will make every effort to improve turn-around-time of routine delivery of drugs and supplies, operationalize an end-to-end diagnostic testing of samples from collection to receiving of test results, complete routine and emergency delivery of vaccines, and emergency delivery of blood units to difficult to reach facilities/entities from identified hubs.

3. Responsibilities of the Service Provider

3.1 The drone transportation service provider will be required to fulfil the following mandatory responsibilities

(i) Ensure compliance with local drone regulation by obtaining necessary permits, completing all necessary procedures and providing timely information to the civil aviation authority (or equivalent); certification of No Permission -No Take-Off (NPNT) compliance issued by DGCA.

(ii) Segregation of facility locations falling into Green, Yellow and Red Zones as per the interactive map (https://digitalsky.dgca.gov.in/airspace-map/#/app) provided by the Central Government. The drone operation will only be undertaken for the facilities/ locations falling in the green zone and yellow zone with requisite clearances and all regulatory approvals. However, the provision to operate in red zone is created which will be done only after following the rules and meeting all the compliance mandated by all relevant governmental and regulatory entities such as MoCA/IAF/MHA/MoD.

(iii) The Service Provider is required to follow the following basic operating principles to reduce (but not eliminate) risks to other airspace users and people and property on the ground:

a. Operations beyond visual line of sight (BVLOS)
b. Flight not above 400ft (120 Mtr) Above Ground Level (AGL).
c. Maintain flight path as per the planned sortie registered on the Digital Sky platform.
d. Limits on flights over large groups of people or urban areas
e. Limits on proximity to people during flight and critical stages of flight (takeoff/ landing)
f. The drone must be equipped with a return-to-home function in case of loss of radio link.
g. In any case, the flight path will be planned in the Green Zone and yellow zone with requisite clearances and all regulatory approvals only and 5km away from the State border to avoid any regulatory violation.

(iv) Manage the entire equipment and materials importation process by liaising with appropriate authorities and possession of requisite license and registration for operation in the state.

(v) Provide equipment (drones, ground station, communication, power/energy, and any other related) and staff for safe and successful drone delivery operations and ensure regular maintenance and repairs of the drone fleet.

(vi) Provide necessary set-up for operations (at hub and at facility level).

(vii) Provide and manage flight planning process, complete approval requests and conduct communications with appropriate Air Traffic Control (ATC) or other relevant authority (Entities should have a dedicated flight live-tracking online system).

(viii) Possess valid third-party insurance for the duration of the services.

(ix) Ensure appropriate safety and emergency procedures are in place to minimize any operational, environmental and other risks and provide the proof of comprehensive Beyond Visual Line of Sight (BVLOS) concept of operations (ConOps); take full responsibility for and manage emergency procedures, including incident reporting as

per local regulatory requirements.

(x) Assess the relevant National, State and Local environmental regulations are complied. The service provider is required to be sensitive to the impact of the operations on local environment and always ensure compliance, at all times.

(xi) The Service Provider, with support from the State, is required to engage with stakeholders and communities and implement an IEC campaign in the area of operation to ensure that (a) Community members are not surprised - they are consulted and information on how UAVs will be used; and (b) Community members are aware of its benefits and the activity has larger community support. The District and State officials will provide support and facilitate this activity.

(xii) Ensure that the operations have negligible impact on surrounding environment, population and the ecosystem. Environmental risks and impacts assessment and mitigation measures shall be undertaken pertaining to (i) proximity to any cultural heritage; (ii) operations affecting wildlife; (iii) educating the relevant authorities on the impact on wildlife and how the task will be adapted to reduce this.

(xiii) The service provider should have a process related to reporting and management of any accidents and incidents and the same shall be documented as part of contract. All incidents and accidents shall be documented and reported to the project and appropriate authorities subject to Government of India (GoI) requirement.

(xiv) Ensure appropriate operational backup to ensure that there is backup drone(s) in all hubs.

(xv) Ensure a documented battery management policy exists including the following elements: (i) Battery storage procedures; (ii) battery charging procedures that are considerate of the task site requirements; (iii) battery charging record; (iv) battery transportation procedures; (v) action in the event of battery emergency; and (vi) support equipment (firefighting, first aid it, signage, etc.)

(xvi) Train relevant local staff (including health facility staff) to ensure consistent implementation of operations and safety procedures and ensure local capacity- building and sustainability

(xvii) Offer continuous reporting of progress and activities to regulatory, health and contracting stakeholders.

(xviii) Reporting Requirements:

a. Collect product and delivery data like number of deliveries, locations, size of package, content of package, number of samples collected, number of vaccines/ medicines delivered, etc. on a weekly basis.

b. Collect flight data, document it and report on it monthly.

(xix) The Service Provider shall submit a Monthly Operation Report based on the Monitoring and Evaluation checklist as per **Annexure 'III'**. He shall also comply with the Flight Checklist placed as **Appendix 'G'** (Pre-Flight, During Flight & Post Flight Checks). The Service Provider must also prepare and get approvals of the pre-flight checklist (including weather, flight details, batteries, structural checks, calibration etc.) and Safety checklist (site survey, flight plan, public awareness, safety procedure etc.) based on industry practices and the regulatory requirements, and same should be agreed with the government in advance.

4. Key activities/ deliverables

a. Set-up phase

i. Segregation of location of all agreed facilities into yellow, green and red zones as directed by the Union Government of India. Process of regulatory approval of all 3 types of zones should start simultaneously as soon as location of facilities is agreed.
ii. Successful completion of the regulatory processes and approvals, obtaining the BVLOS permit to conduct daily delivery flights, and obtaining approvals to carry dangerous goods (medical samples, etc.) if necessary.
iii. Integration with relevant entities, staff and partners to establish all-in-one services: order management, inventory storage and management (if applicable), transportation of supplies from central warehouses to the distribution/ fulfilment center, (re)packing, contract management, IT solutions, and, ultimately, shipping operations and distribution implemented by drones.
iv. Provide specifications based on the scope of work for building/ repurposing a distribution/fulfilment center where all relevant commodities are kept, managed and distributed directly to target health facilities.
v. Equipping the center with all necessary equipment and staff; setting up daily operations.
vi. Development of flight plans as per the agreed use cases and average number of flights per week along with necessary approval.
vii. Visit and scope out each facility to collect necessary data/GPS coordinates and information for operations, as well as assist with community sensitization activities.
viii. Setting up take-off cum landing platforms in all identified facilities.
ix. Equipping the distribution center as well as health facilities with all necessary communication and information systems to fulfil the order and dispatch function.
x. Testing of use-cases identified by the Project to improve healthcare delivery and service.

b. Operations phase

i. According to an agreed frequency (hourly, daily, weekly, etc.), provision of drone delivery operations to health facilities as a part of routine and emergency delivery operations
ii. Weekly reporting of flight (number of flights, incidents, flight hours, total/max/average speed and distance flown), product (weight, volume, type, quantity/number of commodities flown, total/max/average payload weight and volume carried), demand (% of deliveries made in full and on time, based on the distribution plan and based on emergency data.

iii. In case of emergencies, like natural calamities, provision for shifting of drones between the hubs/ or any other suitable place will be the responsibility of the service provider. Service provider shall also be willing to accommodate increased need in the affected areas for more number of sorties during any natural disaster.

5. HR and Staffing

The Service Provider will need to provide a list of all positions required to operationalize the assignment. The positions need to be segregated as mandatory and non-mandatory, meaning that positions that are required to operate the drones and maintain all environment and safety safeguards. For staff already hired, CVs or profiles may be provided and for staff to be hired in the future, the CVs or profiles may be submitted as and when hired.

6. Financial Terms

Payment will be made upon satisfactory completion of services rendered and submission of invoices based on the flights undertaken and deliverables (as defined by TIA) completed on a monthly basis, according to the agreed deliverables and activities, and made against the purchase order/contract. Payment will be made within 30 days after receiving the original invoice and after the Project has reviewed and certified outputs and deliverables.

7. Performance Bank Guarantee

Regarding the advance payment., the service provider would need to submit a performance bank guarantee of 3% (Three percent) of the contract price or as decided by the State/UT as per the provision given in GFR. The Performance Bank Guarantee shall be from a scheduled commercial bank drawn in favor of _____(Full Address) payable at _____. This Guarantee shall be irrevocable and remain in full force for a period of 180 days beyond the date of validity (Period of Contract) signing of the contract agreement and shall continue to be enforceable till all obligations under the agreement have been full filled. The advance payment given if any, (Limited to 10% of the contract value) will be adjusted with the quarterly bills on a pro-rata basis.

8. Technical Bid (Annexure I)

The technical bid would comprise of the following information:

8.1. Detailed proposal describing the mode of implementation of the project (DPR) as per the advertised scope of work.
8.2 Power of Attorney for signing the proposal
8.3 Anti Collusion Certificate
8.4 Project undertaking Certificate
8.5 RPTO certificate & a copy of the drone operation license (UIN/DAN).
8.6 Details of the past experience in handling drone operations in the country.
8.7 Information regarding the bidder (Address, GST, EPF, PAN Card, Audited statement of annual turnover for past two years, Notary attested IT returns filed for the last two financial years completed.
8.2 The bidder whose technical bids are found to be acceptable shall be eligible for participating in the financial bid.
8.3 Affidavit for Non-Conviction Certificate
8.4 Any other relevant document pertaining to project implementation.

9. Financial Bid: on-line as per Annexure II

Technical Specifications

Parameters	Description	Remarks
Range	• The UAV should be able to cover the distance of _____ Kms (one way) minimum aerial distance with single charge. Flight path height clearance - Vertical altitude of 120 meters AGL	Should be capable of BVLOS flight. The UAV should be capable of returning to home/ command station after delivery of the payload.
Payload (Maximum Take Off weight) MTOW	UAV Shall Take off vertically and land vertically bi-directional with the payload suitable to the category of the drone put in service.	- Mounted carrier box with the drone structure for carrying the payload. - Multiple drop off facility. - Winch drop/Parachute drop will not be permitted.
Telemetry	Constant tracking/navigation/ communicating with the base station	GPS/ RF Module enabled tracking
UIN No.	-Valid UIN No. As per Drone Rules 2021 - Registered on Digitalsky platform	Type currency to be ensured with applicable rules & regulations.
Insurance	Third party insurance	As per section X, Rule 44 of the Indian Drone Rules 2021, third party insurance is mandatory.

SECTION II.
GENERAL CONDITIONS OF CONTRACT

FIRST PARTY refers to Procurement Agency and SECOND PARTY refers to contractor whose bid is accepted

1. In the event of an order and any dispute arising out of the same, the FIRST PARTY General Conditions of Contract will apply as under and all references to the General Conditions of Contract include (subject to all relevant approvals) a reference to these terms and conditions as amended, supplemented, substituted, novated or assigned from time to time. Each schedule and annexure referred to in these terms and conditions shall form part of these terms and conditions. The documents forming the supply contract shall be construed and interpreted so that, in the event there is any conflict or ambiguity between them, these terms and conditions shall prevail.

Application and legal status of the parties

2. The General Conditions Of Contract incorporated in section–II shall be applicable for Services related to supply of emergency medical deliveries such as vaccines, medicines, diagnostic samples and other supplies to and from remote areas that are not well connected through regular transportation networks at selected places using drone technology (UAV).

3. Tender Inviting Agency or Hiring Agency and VENDOR shall respectively be referred to as “FIRST PARTY” & “SECOND PARTY” hereunder and each party acknowledges and agrees that:

“Nothing contained in or relating to the contract shall be construed as establishing or creating between the Parties the relationship of employer and employee or of principal and agent. The officials, representatives, employees, or subcontractors of each of the Parties shall not be considered in any respect as being the employees or agents of the other Party and each Party shall be solely responsible for all claims arising out of or relating to its engagement of such persons or entities”.

Definitions

4. GOODS: Goods are hereinafter deemed to include, without limitation, such medicines, blood products, diagnostic samples, injections & vaccines, etc and products which the Tenderer is required to supply pursuant to the Purchase Order as specified by the State Health Authority. Services are hereinafter deemed to include services ancillary to the supply of the Goods including, without limitation transportation and supply at the point of consignee and such other obligations as required under this Contract.

Packaging of goods

5. The SECOND PARTY shall package the Goods for delivery with the best materials that are adequate to safeguard the Goods while in transit and with all due care and according to the highest standards of export packaging for the type and quantities of the Goods. The Goods shall be packed and marked in a proper manner in accordance with the instructions stipulated in the Contract or, otherwise, as customarily done in the trade and in accordance with any requirements imposed by applicable law or by the transporters and manufacturers of the Goods. The packing, in particular, shall mark the Contract or Purchase Order number and any other identification information provided by FIRST PARTY as well as such other information as is customary for the Goods in question.

During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt, precipitation and open storage. The SECOND PARTY shall have no right to any return of the packing materials.

Transportation and Freight

6. Unless otherwise specified in the Contract the SECOND PARTY shall be solely liable for making all transport arrangements and for payment of freight and insurance costs for the shipment and delivery of the Goods.

Delivery of Goods

7. The SECOND PARTY shall hand over or make available the goods and the Consignees shall receive the goods at the place for the delivery of the Goods and within the time for delivery of the Goods as specified. All manuals, instructions, displays and any other information relevant to the Goods shall be in the English language unless otherwise specified in the Contract. Unless specifically stated in the Contract the entire risk of loss, theft, damage to, or destruction of the Goods shall be borne by the tenderer.

Indemnification

8. The SECOND PARTY shall indemnify, defend and hold the FIRST PARTY, the DoHFW and the Government agencies harmless against any or all proceedings, actions and third-party claims arising out of a breach by the SECOND PARTY of any of its obligations under this agreement. This indemnity shall be limited in respect of making harmless to the FIRST PARTY, the DoHFW and the Government agencies.

9. The bidder shall indemnify the FIRST PARTY against all actions, suits, claims and demands brought or made against it, in respect of anything done or committed to be done by the SECOND PARTY in execution of or in connection with the work of this contract and against any loss or damage to the FIRST PARTY in consequence to any action or suit, or a legal proceeding, being brought against the bidder for anything done or committed to be done in the execution of this contract. The bidder will abide by the job safety measures prevalent in India and will free the FIRST PARTY from all demands or responsibilities arising from accidents or loss of life, on account of the bidder's negligence and responsibility. The bidder will pay all indemnities arising from such incidents without any extra cost to FIRST PARTY and will not hold the FIRST PARTY responsible or obligated. The FIRST PARTY may at its discretion and entirely at the cost of the bidder defend such suit, either jointly with the bidder or severely in case the latter chooses not to defend the case and /or proceeding.

Liquidate Damages

10. Except under the circumstances of force majeure as described, if the SECOND PARTY fails to deliver any or all of the Goods by date(s) of delivery as per conditions of the contract, FIRST PARTY may, without prejudice to any or all its other remedies under the contract, deduct from the contract price, Liquidated damages for delayed delivery of goods.

Blacklisting

11. Any service provider who is currently blacklisted by any Government Department/ Government Agency in India, would not be eligible to participate in the tender.

Penalty for default

12. The following penalties shall be imposed against offences mentioned against each:

Nature of offence	Penalty to be imposed
Any wrong or misleading information provided by the Tenderer during submission of bids	May lead to blacklisting for at least 2 years.
Non execution of agreement within 30 days of award of contract	Blacklisting for 2 years Blacklisting to be circulated as per the extant norms Penalty of 1% of the contract value per day (To be Decided by State) for non-compliance.
Breach of Agreement	Termination of Contract. Blacklisting for participating in future bids. Forfeiture of the Performance Bank Guarantee

Termination of Contract

13. FIRST PARTY may, upon notice to the Tenderer, terminate this Contract, in whole or in part, at any time without any reason or due to poor performance. for its convenience. The notice of termination shall state that termination is for FIRST PARTY's convenience, the extent to which performance of the SECOND PARTY under the Contract is terminated and the date upon which such termination becomes effective. In the event of Termination for Convenience, no payment shall be due from FIRST PARTY to the Tenderer except for flights satisfactorily undertaken and for the cost of such necessary work as FIRST PARTY may request the Tenderer to complete.

Confidentiality

14. FIRST PARTY and the SECOND PARTY, its agents, employees, sub-contractors and servants shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto, in connection with the Contract, whether such information has been furnished prior to, during or following competition or termination of the contract. Notwithstanding the above, the SECOND PARTY may furnish to its sub-contractor such documents, data and other information it received from FIRST PARTY to the extent required for the sub-contractor to perform its work under the contract, in which event the SECOND PARTY shall obtain from such sub-contractor an undertaking of confidentiality similar to that imposed on the SECOND PARTY.

15. FIRST PARTY shall not use such documents, data and other information received from the SECOND PARTY for any purpose unrelated to the contract. Similarly, the SECOND PARTY shall not use such documents, data and other information received from FIRST PARTY for any purpose other than the performance of the contract.

Force Majeure

16. Force majeure as used herein means any unforeseeable and irresistible act of nature, any act of war (whether declared or not), invasion, revolution insurrection, flood earthquake or any other acts of a similar nature or force, provided that such acts arise from causes beyond the control and without the fault or negligence of the SECOND PARTY. The SECOND PARTY acknowledges and agrees that, with respect to any obligation under the contract that the SECOND PARTY must perform any delays or failure to perform such obligation arising from or relating to harsh conditions within such areas shall not, in and of itself, constitute Force majeure under the contract.

Assignment

17. The SECOND PARTY shall not, except after obtaining the prior written approval of FIRST PARTY, assign, transfer, pledge, or make any other disposition of this contract or any part hereof or of any of the SECOND PARTY's right or obligations hereunder, except with the prior written authorization of FIRST PARTY. The SECOND PARTY may assign or otherwise transfer the contract to the surviving entity resulting from a reorganization of the Party's operations.

18. Prior to the written approval of FIRST PARTY, the SECOND PARTY shall promptly notify FIRST PARTY of such assignment at the earliest opportunity subject to the assignee or transferee agrees in writing to be bound by all of the terms and conditions of the contract and such writing is promptly provided to FIRST PARTY following the assignment or transfer and FIRST PARTY finds that the SECOND PARTYs has the financial and technical capacity as laid down in the tender document to carry out the assignment.

Amicable Settlement

19. When a dispute arises under this agreement, the parties shall make all reasonable efforts to resolve through good faith negotiation, failing which they will attempt at dispute resolution with the intervention of the Principal Secretary, the DoHFW.

Arbitration

20. Except for a dispute in connection with termination in which respect the decision of FIRST PARTY shall be final, any dispute between the parties arising out of or relating to this agreement which cannot be resolved through good faith negotiation shall be settled in arbitration, in terms of the provisions of the Arbitration and conciliation Act1996 (No.26 of 1996). The arbitration hearing shall be held in <State> only. The award of the arbitrator (s) shall be binding on both the parties. The cost of arbitration shall be borne by the respective parties.

21. Pending the submission of and / or decision on a dispute, difference or claim, or until the arbitral award is published, the party shall continue to perform all of their obligations under this agreement without prejudice to a final adjustment in accordance with such award.

Court of law

22. In case of any dispute in between the parties, the matter will be settled in appropriate Court of Law within <insert Name of State>Jurisdiction.

TECHNICAL BID

(Relaxations applicable to MSME/Start-ups and others as per GoI Guidelines)

Name and Complete address of the bidder with telephone, mobile, email address etc.	
Name and designation of the authorized signatory to whom reference shall be made.	Name: Designation: E-mail: Mobile:

Sl. No.	Documents required	Type of document attached	Page/ Flag No.
1.	Company Incorporation Certificate from ROC/Partnership deed etc.		
2.	GST Registration or GST exemption certificate/ PAN Card.		
3.	Letter for past experience And Detailed Project proposal		
4.	Certificate from the Chartered Accountant of the Organization/Audited Balance sheets for last three financial years, Income Tax return.		
5.	Proof of a registered office and a manufacturing Unit in India.		
6.	Digital Sky Platform Registration or MoCA Approval (if applicable)		
7.	Authorization Letter		
8.	UAV Specification	As per format	

UAV DETAILS	
UAV make and hardware specifications	
DAN No.	
DGCA compliant (NPNT) certificate (Yes/ No/ In process) (attach copy)	
DGCA compliant (NPNT) certificate (Yes/ No/ In process) (attach copy)	
Category of UAV (Nano /Micro / Small/ Large)	
Maximum aerial distance and coverage area (in single sortie)	
Ability to drop and return back to command center (Yes/ No)	
Operating altitude and maximum altitude	
Maximum wind speed handling limit	
Capability to operate in all weather conditions (Yes/ No)	
Maximum and average speed of UAV's	
Battery charging duration (Minutes / fuel capacity (in litre)	
No. of batteries required per UAV	
Battery Specifications	
Battery voltage (V) at each launch and landing	
Take-off and landing requirements	
Payload delivery mechanism: Top load/Side load/ Bottom load	
Payload capacity (KG)	

Temperature maintenance and sensors that communicate with the base station	
Time to setup base stations / landing points + capability of dynamic starting / ending points	
SAFETY FEATURES	
Third Party Insurance (Yes/No/In Process)	
Geo-fencing return home and flight termination capability (Yes/No)	
Live trajectory information and monitoring features (Yes/No)	
Explain mechanism of safe UAV landing in case of geo-fencing breach	
Flight Logging (Yes/No	
Safety requirement as per DGCA (Yes/No)	
COMPANY CAPACITY TO PROVIDE THE SERVICES	
Capacity to provide Number of Drone(s)/ UAVs	
Capacity to cover number of Sites in India	
Minimum time required to establish Command center at the selected site	
Minimum time required for delivery of drones	

Annexure- II

FINANCIAL BID

Tender Inviting Authority

File No:

Bidder Company:

Description of the item	Duration	Total cost per Km of Aerial Distance (All inclusive , excluding applicable GST)
Beyond Visual Line of Site (BVLOS) flights in fixed predefined/pre-approved flight paths a nd deliver the vaccine and lifesaving drugs payload at selected locations in the pre-identified Hubs in …….. (No. of Hubs) and predefined Spokes (PHCs/SC-HWCs) with reverse logistics. As per Scope of Work listed by Tender Inviting Authority/ DHFW.	No. of Months: (_____)	Rs. …… In Words (_____)
	GST	Rs : .....
Total		

MONITORING AND EVALUATION CHECKLIST

Data recording sheet - Take-off Point

1. Site Particulars (Take-Off) : To be filled by the site nodal officer at the cold chain room

1.1 State/ District:

1.2 Site code number:

1.3 Coordinates: Latitude:

Longitude:

Mean Sea Level (MSL):

1.4 Date (Date: Month: Year):

1.5 Time (Hrs: Min):

1.6 Authorization form/ Indent form signed (Hard Copy):

2. Payload Particulars: (To be filled by the healthcare worker)

2.1 Name of the HCW examiner:

2.2 Type of Payload: Vaccine/ Tablets/ Syrups/ Surgical

2.3 Weight of payload (Kg):

2.4 Labels on the payload are intact: Yes/No

2.5 Expire date mentioned on the medical supply (Date: Month: Year):

2.6 Carrier Box Components:

a. Total number of vials/ Tablets/ Syrups:
b. Physical damage/leakage of the vial content: Yes/No
c. If Yes, Number of Vials:
d. Carrier Box is in good condition: Yes/No
e. Gel/Ice packs are properly placed: Yes/No/ Not Required
f. Digital Temperature logger is On: Yes/No
g. Vaccines are placed inside of the box: Yes/No
h. Temperature inside box (°C):
i. Temperature Logger Placed. Yes/No
j. Carrier box sealed properly: Yes/No
k. Total Weight of the box (kg):
l. Properly entered in the register: Yes/No

2.7 Authorisation form signed (hard copy): Yes/No

3. Drone particulars take off site : To be filled by the Drone Operator at the Take-Off Site

3.1 Drone firm name:

3.2 Name of drone pilot (Take-Off):

3.3 RPTO certified drone pilot: Yes/No

3.4 Carrier Box loaded time into the drone chamber (Hr: Min):

3.5 All necessary forms placed inside the carrier box as per DGCA norms:
3.6 Authorisation form signed (Take-Off): Yes/No
3.7 ATC Clearance for before take-off: Yes/No
3.8 Weather monitoring:
i. Cloud cover (%):
ii. Visibility range (in meters):
iii. Smog/fog: Yes/No
iv. Sunlight: Yes/No
v. Lightning: Yes/No
vi. Precipitation (%):
vii. Environmental temperature (°C):
viii. UV index:
ix. Wind speed and direction (mph):
x. Humidity (%):

4. Flight particulars: To be filled by the Drone Operator at the Take-Off Site

4.1 Time of Take-off (Hrs:Min):
4.2 Aerial Distance to be covered (km):
4.3 Expected time of delivery:
4.4 Expected external temperature (°C) during the flight:
From_____ to _____.
4.5 Digitalsky flight plan approval: Yes/No
4.6 Maximum flight altitude (in meters):
4.7 Take-off at the scheduled time: Yes/No
4.8 Telemetry : Continuous / intermittent / No Telemetry

5. Unexpected events : To be filled by the Drone Operator at the Take-Off Site (If applicable)

5.1 Distance travelled (km):
5.2 Time travelled (Hrs: Min):
5.3 Speed of travel (m/s): Minimum:
Maximum:
Average:
5.4 Time of crash/loss (Hrs: Min): (Hrs: Min)
5.5 Location of crash/loss: Place:
Coordination:
5.6 Type of location:Urban/Forestry/Water bodies/
Restricted Sensitive areas/Others:
5.7 Damage to: Humans:
Properties:
Forest:
Others:

5.8 Type of interruption: Technical failure:
External interruption:

5.8.1 Technical: Battery:
Communication:
Others:

5.8.2 External factors: Humans/ Birds/ Buildings/ towers/Trees/ Extreme weather/others:

5.9 Tried to returned to the take-off point: Yes/No
If yes, details:

5.10 Total number of sortie in this route:

5.11 Prior failure at this route: Yes/No

5.12 No of successful sortie by this vehicle At this route:
Overall:

5.13 No of failure by this vehicle: At this route:
Overall:

5.14 If place of crash/collision crash undetected:

6.1 Comments from takeoff hub : (To be filled after take-off)

6.2 Drone Pilot comments:

Signature of the coordinator

Data recording sheet- Landing point

1. Site Particulars (Landing): To be filled by the State site nodal officer

1.1 State/ District:

1.2 Site name:

1.3 Coordinates: Latitude:
Longitude:
Mean Sea Level (MSL):

1.4 Site in-charge (Landing):

1.5 Date (Date: Month: Year):

1.6 Time (Hrs:Min):

1.7 Authorisation form signed:

2. Landing Details : To be filled by the Drone Operator at the Landing Site

2.1 Unexpected event happened: If yes go to 5. If no continue filling

2.2 Landing Time (Hrs:Min):

2.3 Vehicle travelled in the scheduled path: Yes/No

2.4 If no, sate the details:

2.5 Drone landed at scheduled site: Yes/No

2.6 If no, state the reason:

2.7 Aerial Distance covered (km):

2.8 Time travelled (Hrs:Min):

2.9 Maximum speed (m/s):

2.10 Altitude of flight (m): Flight altitude (MSL) :
Ground level :

3. Drone Particulars: To be filled by the Drone Operator at the Landing Site

3.1 Name of drone operator (Landing):

3.2 Battery capacity: Utilised (%) :
Remaining (%) :

3.3 Digital data collected during the flight:

a. GNSS: Yes/No

b. Flight Dynamics: Yes/No

c. Vibration: Yes/No

3.4 Status of drone: Undamaged :
Damaged :

3.5 Authorization form signed (Landing): Yes/No

3.6 Weather monitoring at landing site:

i. Cloud cover (%):

ii. Visibility range (in meters):

iii. Smog/fog: Yes/No

iv. Sunlight: Yes/No
v. Lightning: Yes/No
vi. Thunder: Yes/No
vii. Precipitation (%):
viii. Environmental temperature (°C):
ix. UV index:
x. Wind speed and direction (mph):
xi. Humidity (%):

4. Carrier Details : To be filled by the healthcare worker at the cold chain room

4.1 Name of the HCW examiner (Landing):
4.2 Time taken in transportation of carrier box to healthcare facility (Hr: Min):
4.3 Name of the vaccine/tablet/syrup/medical supply:
4.4 No of doses:
4.5 Labels on the vaccine vials are intact: Yes/No
4.6 Expire date mentioned on the vials (Date: Month: Year):
4.7 Carrier Box:
a. Total number of vials/ tablets/syrup/etc:
b. Physical damage/leakage payload content: Yes/No
c. If Yes, Number of damaged products:
d. Carrier Box is in good condition: Yes/No
e. Gel/Ice packs are properly placed: Yes/No
f. Digital Temperature logger is working: Yes/No
g. Temperature inside box (°C):
h. Carrier box sealed properly: Yes/No
i. Weight of box (kg):
j. Properly entered in the register: Yes/No
4.8 Authorization form signed (hard copy): Yes/No

5. Unexpected events : To be filled by the Drone Operator at the Take-Off Site

5.1 Distance travelled (km):
5.2 Time travelled (Hrs: Min):
5.3 Speed of travel (m/s): Minimum :
Maximum :
Average :
5.4 Time of crash/loss (Hrs: Min):
5.5 Location of crash/loss: Place :
Coordination :
5.6 Type of location:
Urban/Forestry/Water bodies/Restricted or Sensitive areas/ Others
5.7 Damage to: Humans/Properties/Forest/Others:

5.8 Type of interruption: Technical failure :

External interruption :

5.8.1 Technical: Battery/ Communication/ Others :

5.8.2 External factors:

Humans/ Birds/ Buildings/towers/Trees/Extreme weather/others

5.9 Tried to returned to the take-off point: Yes/No

5.10 If yes, details:

5.11 Total number of sortie in this route:

5.12 Prior failure at this route:

5.13 No of successful sortie by this vehicle: At this route :

Overall:

5.14 No of failure by this vehicle: At this route :

Overall :

5.15: If place of crash/collision crash undetected:

6. Delivery particulars

6.1 Medical supplies delivered to the landing point safely:

Yes/No

6.2 If no, please state the reason:

Signature of the coordinator

THE FOLLOWING REQUIREMENTS WITH REGARD TO INSPECTION, QUALITY, WARRANTY, MAINTENANCE AND RELATED SERVICES SHALL COMMONLY APPLY TO ALL THE SERVICES IN ALL THE SCHEDULES

A. Drone Service Pre-Requisites

The vendor/ agency shall ensure that the necessary permissions and clearances for drone (Unmanned Aircraft System – UAS) operations (DAN/ DIN etc.) are obtained from respective authorities wherever applicable such as, including, but not restricted to the following

i. Directorate General of Civil Aviation (DGCA) – bidders are requested to comply with the latest version DGCA Civil Aviation Requirements (CAR), Section 3-Air Transport, Series X, Part-I & Public Notices issued in this regard from time to time. The latest public notice of MoCA on Drone is provided herewith for kind perusal and actions.

AV-13024/12/2019-SDIT-MoCA
Government of India
Ministry of Civil Aviation

Rajiv Gandhi Bhavan, New Delhi
O8 June 2020

PUBLIC NOTICE

Subject: Voluntary disclosure of non-compliant drones flying in India

1. Whereas, the Directorate General of Civil Aviation (DGCA) has issued the Civil Aviation Requirements (CAR), Section 3 – Air Transport Series X, Part I, Issue I, dated 27 August 2018 which regulates the use of drones in the Indian Airspace and these regulations provide process for obtaining Unique Identification Number (UIN), Unmanned Aircraft Operator Permit (UAOP) and other operational requirements.
2. In order to facilitate the identification of civil drones and drone operators, a one-time opportunity for voluntary disclosure of such drones and drone operators was provided during 14-31 January 2020 vide public notice dated 13 January 2020 of this Ministry.
3. Based on public request, another opportunity is being provided to persons in possession of drones to submit the required information to the government. The submission of requisite information will be through the online portal (https://digitalsky.dgca.gov.in), as earlier.
4. On successful submission of the required information and documents, an Ownership Acknowledgement Number (OAN) and a Drone Acknowledgement Number (DAN) will be issued online. The OAN or DAN does not confer any right to operate the drone in India, if it does not fulfil the provisions given in the CAR.
5. Ownership of a drone in India without a valid DAN or OAN shall invite penal action as per applicable laws.

• Any additional information or clarification may be sought from the Digital Sky helpdesk at support-digisky@gov.in. Sd/- 08.06.2020

(Amber Dubey)
Joint Secretary to the Govt. of India

ii. Ministry of Defence (MoD)
iii. Ministry of Home Affairs (MHA)
iv. Air Traffic Control (ATC)
v. Local Police and District Administration etc.

- The above clearances, and permissions shall have to be mandatorily obtained prior to commencement of the flight operation and the agency shall have to also mandatorily submit a copy of the permissions and clearances received, to the designated officer of <TIA>.
- It shall be the responsibility of the agency to ensure that the drone operations do not take place without obtaining the relevant permissions from respective authorities.
- The agency shall be responsible for engaging required manpower to complete the work within the specified period.
- Prior to commencement of flight operation, the agency shall conduct necessary field visits for the study of the area for flight planning and establish Ground Control Points (GCPs), if required.
- Agency shall establish GCPs depending on the requirement to meet the desired specifications of the services
- Vendor/ Agency shall ensure that base station is established for each Drone flight.
- Vendor/ Agency shall ensure that endurance of each Drone for data acquisition shall not be less than 30 minutes
- The Vendor/ Agency shall deploy required number of resources on project to process the data and generate required outputs within the shortest possible time
- The Agency shall ensure that all flight data be brought into a single block and it shall be in the desired correction range
- Insurance – the Vendor/Agency should have adequate insurance to cover for the costs required in case of any damage to life & property caused by accident

Bid Security Declaration Form

(On the letter head of the firm)

Date : _____ (Tender no. _____)

To
The Tender Inviting Authority,
Name of the State _____

I/We, the undersigned, declare that:

I/We understand that, according to your conditions, bids must be supported by a Bid Security Declaration.
I/We accept that I/We may be disqualified from bidding for any contract with you for a period of two year from the date of notification if I am / We are in a breach of any obligation under the bid conditions, because I/We

a) have withdrawn/modified/amended, impairs of derogates from the tender, my/our Bid during the period of bid validity specified in the form of Bid, or
b) having been notified of the acceptance of our Bid by the Tender Inviting Authority during the period of bid validity (i) fails or reuse to execute the contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Bidders.
c) if I/we withdraw or modify our bids during the period of validity, or if we are awarded the contract and failed to sign the contract, or to submit a performance security before the deadline defined in the request for bids/ request for proposals documents, we will be suspended for a period of 02 years from being eligible to submit bids/proposals for contracts with the Tender inviting authority.

I/We understand this Bid Security Declaration shall cease to be valid if I am/we are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder, or (ii) thirty days after the expiration of the validity of my/our Bid.

Signed: *(insert signature of person whose name and capacity are shown)*

In the capacity of *(insert legal capacity of person signing the Bid Securing Declaration)*

Name: *(insert complete name of person signing the Bid Security Declaration)*

Duly authorized to sign the bid for an on behalf of *(insert complete name of Bidder)*

Date on ..... day of ..... *(Insert date of signing)*

Seal *(where appropriate)*

Please Note: - The above Undertaking duly signed and Stamped by the Authorized Signatory of the Company, must be attached with the technical bids.

LIST OF CONTRIBUTORS

Ministry of Health and Family Welfare		
1.	Shri. Apurva Chandra	Union Secretary Health and Family Welfare, MoHFW
2.	Ms. Aradhana Patnaik	AS&MD NHM MoHFW
3.	Shri. Saurabh Jain	Joint Secretary Policy MoHFW
4.	Dr. Kaustubh Sandip Giri	Deputy Secretary- NHM-IV
5.	Dr. Anil Kumar Gupta	Lead Consultant MoHFW
6.	Dr. Nidhi Nigam	Sr. Consultant, MoHFW

National Health System Resource Centre		
1.	Maj Gen (Prof) Atul Kotwal, SM, VSM	Executive Director
2.	Air Cmde (Dr) Ranjan Kumar Choudhury VSM	Advisor, Healthcare Technology
3.	Mr. Anjaney Shahi	Lead Consultant, Healthcare Technology
4.	Ms. Vertika Agarwal	Sr. Consultant, Healthcare Technology
5.	Dr. Prakamya Gupta	Consultant, Healthcare Technology
6.	Ms. Charu Rai	Sr. Consultant, Healthcare Technology
7.	Dr. Manisha Sharma	Consultant, Healthcare Technology
8.	Ms. Ritu Malik	Consultant, Healthcare Technology
9.	Dr. Ragini Bhatia	Consultant, Healthcare Technology
10.	Ms. Ashi Karke	Secretarial Executive

Notes

Notes

NATIONAL HEALTH SYSTEMS RESOURCE CENTRE
NIHFW Campus, Baba Gangnath Marg, Munirka,
New Delhi 110067