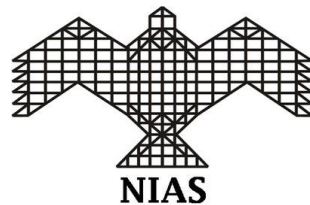


# **TENDER DOCUMENT**

**For**

**CONDUCTING DRONE SURVEY ALONG WITH IMAGE  
PROCESSING TO GENERATE HIGH RESOLUTION PRIMARY DATA  
AND IDENTIFY EMISSION HOT SPOTS IN BENGALURU**



**NATIONAL INSTITUTE OF ADVANCED STUDIES**

**Bengaluru, India**

### **National Institute of Advanced Studies (NIAS):**

The National Institute of Advanced Studies (NIAS) was conceived and founded in 1988 by the late Mr. J. R. D. Tata, who sought to create an institution to conduct advanced multidisciplinary research. The Institute is unique in its integrated approach to the study of intersections between science and technology, philosophy, and the social sciences. The objective is to nurture a broad base of scholars, managers and leaders who would respond to the complex challenges that face contemporary India and global society with insight, sensitivity, confidence, and dedication. Please visit our website (<https://www.nias.res.in>) for more details.

### **About Project**

The Energy, Environment and Climate Change Program (EECP) at NIAS is currently implementing a collaborative study to ***“Identify emission hot spots and developing high-resolution emission inventory of major air pollutants using drone technology in Bengaluru,”*** sponsored by the Environmental Management and Policy Research Institute (EMPRI), Govt. of Karnataka.

### **Scope of the project**

This is a Trunkey job and NIAS needs the final product in terms of processed primary data and images as stated in deliverables. Drone based imaging need to be done using the appropriate high resolution camera as per the requirement of the product in and around 40-50 major crowded hot spot regions having a radius of 100-1000m along with a few samples road survey in Bengaluru urban district (BUD). Necessary permissions for Drone sorties, flying and collecting data, post processing of the images along with all necessary components as required to get the final refined product with QA/QC.

Bidder should quote charges based on the following break-up:

- (a) Drone charges per hour or per day which should include everything necessary to fly including legal permissions, manpower, fuel, camera, etc. completed in all respect.
- (b) The image processing of the digital data obtained from drone survey in a systematic form including time stamping (date and time), latitude, longitude, spatial area covered, generic location name, etc. The final quality controlled, and quality assured high resolution primary data should be made available in digitised as well as in image form.

### **Objectives:**

The purpose of this Survey is mainly to focus on monitoring the traffic intersections at strategic points but may also extend to identifying construction sites, waste burning sites, slum pockets, eateries clusters, industries etc. The traffic junctions (hot spots) and street survey data should also be able to identify the following parameters.

- 1) Number of vehicles of different types (2W/3W/4W/LCV/HCV/etc.) in specified area
- 2) Average Speed of vehicle in particular road
- 3) Road Conditions (Paved or unpaved, under construction)
- 4) Age of vehicle with engine technology (To be identified by Name plate)
- 5) Vehicle use for (Commercial/personal/private/from other district/state etc)
- 6) Area of hot spots like burning areas, traffic congestion, hotel/eateries clusters, few industries etc.
- 7) The detail land use land cover properties over the survey areas has to be prepared
- 8) Numbers and locations of Speed breakers
- 9) Survey across the railway station/ major tourist/historical area
- 10) The survey should also carried out for couple of sectors like transport on weekends to understand the activities better

11) Any other important parameters from the image processing outcome

### **Key Responsibilities of the shortlisted bidder:**

As the project time is for a short duration, the work should be completed in least possible time but not exceeding more than 2 months in field. Company should specify how much time will it take for the completion of this survey along with image processing and all the deliverables as part of their bids.

### **Deliverables:**

Referring to the above points the following deliverables should be provided.

- 1) Raw images of all the surveyed areas. (Softcopy in TIFF format)
- 2) Analyzed images and outcomes. (Softcopy in TIFF format)
- 3) Hotspot wise analysis reports and analytics (with Tabular format & image).
- 4) Geolocation of each hotspot and area cover along with brief description about the various activities involved.

### **Format of tender bids**

The bids are to be submitted in two parts: a technical bid and a financial bid.

- a. The technical bid should include:
  - i. Proof of valid registration of company/firm
  - ii. Proof of technical capacity: (Availability of appropriately trained personnel and facilities to carry out the required work).
  - iii. Details of similar work done in the last 3 years (proof to be enclosed)
  - iv. Details of timescales, including projected dates of commencement and completion of work.
  - v. Names and contact information of key people involved, including agency head.
  - vi. Contact details for communication.
- b. The financial bid should:
  - i. Provide a breakup of the bid as requested under ‘Scope of Work’, above.
- c. In case of selection, the tenderer is required to furnish their Permanent Account Number (PAN) issued by the Income Tax Department.

### **TERMS & CONDITIONS**

1. The tender bids must be submitted in separate sealed envelopes addressed to:  
The Head (Administration)  
National Institute of Advanced Studies  
Indian Institute of Science Campus  
Bengaluru 560012
2. **Last date and time for the receipt of the completed tender is April 28<sup>th</sup>, 2023, 12 noon.**
3. **Tenders will be opened at 3 p.m. on April 28<sup>th</sup>, 2023.**
4. Tender must be valid for at least **30 days** from deadline.
5. Financial bid will be opened **ONLY** if the technical bid meets the required criteria.
6. This tender is not transferable.
7. The prices quoted should be firm and irrevocable and not subject to any change whatsoever.
8. The tender must be completed in easily understandable terms.
9. The tender must be clearly typed.
10. Page numbers must be clearly indicated in the proposal (e.g., Pg. 1 of 12, Pg. 2 of 12).
11. Partial, incomplete, or conditional tenders will not be considered.

12. The tender must be received at the office in hard copy; tenders received via fax, email, etc. will not be considered.
13. NIAS will not be responsible for late submissions due to delivery delays.
14. NIAS will not be responsible for deliveries of tender to any place other than the address stated above.
15. NIAS reserves the right to reject any or all tenders without assigning any reason.

Sd/-  
Head Administration  
National Institute of Advanced Studies,  
Bengaluru - 560012

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