

**National Centre for Sustainable Coastal Management**  
Ministry of Environment, Forest & Climate Change, Govt. of India  
Anna University Campus, Chennai 600025

**HIRING OF A  
CONSULTANT - REMOTE SENSING**

**EOI No. 3/2/2023-Proc /NCSCM/RS(2)-CON/MZAI Date: 03.08.2023**



## 1. INTRODUCTION

- a) National Centre for Sustainable Coastal Management (NCSCM) is an institution under the Ministry of Environment, Forest and Climate Change, Government of India, being located at Anna University Campus, Chennai-600025. NCSCM is undertaking various CRZ projects and CZMP/ ICRZ/ IIMP mapping projects for Gujarat, Maharashtra, Goa, Karnataka, Andhra Pradesh, Diu & Daman and Andaman & Nicobar Islands.
- b) The purpose of this Expression of Interest is to seek the services of experienced individuals for preparation of Mangrove Zonation Atlas (in digital form) depicting dominant mangrove species/ community distribution at 1:25000 SOI OSM grid for nine coastal states and 4 UT's.
- c) The objective of this document is to provide indicative information about the scope and objective of this activity.

## 2. NOTICE INVITING EOI

- a) The NCSCM invites expression of interest from individuals having experience in remote sensing including programming using Python, JavaScript and latest algorithms such as CNN, RNN, ANN etc.
- b) Interested individuals who meet the criteria as mentioned above, may furnish their Expressions of Interest with all the necessary documents to the below address along with the covering letters duly signed by the authorized signatories.
- c) The Expressions of Interest must reach on or before **4 P.M. of 9<sup>th</sup> August 2023** at the following address:  
**The Director**  
**National Centre for Sustainable Coastal Management,**  
**Anna University Campus, Chennai-600025, Tamil Nadu**
- d) The EOIs submitted by telegram / fax / e-mail, etc. shall not be considered.
- e) NCSCM shall not be responsible for any postal delay or non-receipt / non-delivery of the documents. No further correspondence on the subject will be entertained.
- f) Any amendment/ modification shall be issued through corrigendum only and the same will be hosted in the office website [www.ncscm.res.in](http://www.ncscm.res.in) only. The interested applicants are requested to check the same in the website only.
- g) The offers shall remain valid at least for a period of 90 (ninety) days from the last date of submission of EoIs.

Sd/-

**DIRECTOR, NCSCM**



### 3. CRITICAL INFORMATION

Submission of the proposals in response to this notice shall be deemed to have been done after careful study and examination of this document with full understanding of its terms, conditions and implications.

Sl. No.	Information	Details
1.	EOI No. and Date	3/2/2023-PROC/NCSCM/RS(2)-CON/MZAI dt.03.08.23
2.	Last Date and Time for submission of EOI	9 <sup>th</sup> August 2023, 4 P.M
3.	Address at which proposal in response to EOI is to be submitted	The Director National Centre for Sustainable Coastal Management, Anna University Campus, Chennai-600025, Tamil Nadu
4.	Date and Time of opening of EOIs	9 <sup>th</sup> August 2023, 4.30 PM

### 4. ELIGIBILITY CRITERIA

The interested individuals shall have to comply to the following criteria to participate in the tendering process –

- a) Should have M. Tech./ M. Sc. Degree in Remote Sensing.
- b) Should have a minimum 5 years of experience in Remote sensing - GIS related assignments/ teaching with basic programming knowledge of Python.
- c) Desirable Criteria: -
  1. Ph.D. in Remote Sensing and GIS applications in Natural Resource Management.
  2. Software & Field Skills: -

**i) Image processing:**

**Geo-Spatial Packages and Cartography**

ESRI ArcGIS 10x, ERDAS imagine, ENVI, Map Info or Similar

## **Open-Source Geospatial Packages:**

Qgis & Google Earth Engine

### **ii) Programming Languages and Data Base analytics**

(e.g. Python, SQL, Java Script, Oracle - Basic programming skill on Python, SQL Commands for creation of a new database, updation, selection, modification and insertion of a new database etc).

### **iii) Data processing and Deep learning**

Hive, Hadoop or Similar

ANN, CNN, RNN or Similar

### **iv) Statistical Data Analysis:**

R, SPSS, Matplot or Similar

### **v) Geographical Positioning System:**

Trimble, Leica DGPS, Garmin or Similar

3. Experience in Mangrove Mapping and Management

4. Paper publications in peer reviewed journals

## **5. SCOPE OF WORK**

The overall objective of the proposed service includes Photo-documentation of dominant mangrove species/ communities & Development of a dynamic web portal for cataloguing the spatial output for greater utilization for mangrove conservation to depict the in-situ characteristics corresponding to the mangrove zonation of each State/UT.

## **6. SCOPE OF SERVICES**

The details are in the Terms of Reference (ToR) attached as **Annexure – I**.

The scope of services may be modified based on mutual agreement between the NCSCM and the Consultant with a view to achieve the overall objective.

## **7. PERIOD OF ASSIGNMENT:**

The assignment would be for a period up to 30<sup>th</sup> September, 2023. This may subsequently be extended for a further period based on satisfactory performance, need, availability of funds and mutual agreement between NCSCM and the Consultant.

## **8. FEES**

- 8.1 **A monthly consolidated consultancy fee of Rs. 57,500/- (Rupees Fifty Seven Thousand and Five Hundred Only)** (all inclusive) shall be given to the consultant. The fees shall be paid on monthly basis on submission of invoice and report. The entire task has to be completed by the consultant on or before 30<sup>th</sup> September 2023.
- 8.2 The Consultant shall not claim nor shall be entitled to pay, perks and other facilities admissible to regular/ confirmed/ contractual employees of NCSCM during the currency or after expiry of the contract.
- 8.3 In case of termination of the contract on its expiry or otherwise, the Consultant shall not be entitled to and shall have no claim for any absorption in the regular/ otherwise capacity in NCSCM.
- 8.4 The Consultant shall not claim any benefit/ compensation/ absorption/ regularization of services with NCSCM under any provision/ Act/ Rules.

## **9. FACILITIES TO BE PROVIDED BY THE NCSCM:**

9.1 NCSCM shall provide sitting/ working space, computer/ laptop, printer, office stationaries, etc. for day to day operation & discharge of official works by the Consultant.

### **9.2 Data Processing**

- Work Station specifications  
HP Z4 G4 workstation  
Xeon processor W-2245  
64GB RAM  
Hard Disk – 1 TB  
SSD- 512 GB  
Graphics Card - NVIDIA® Quadro RTX 4000
- Monitor - Minimum 24” inches wide screen
- Input devices - Standard USB Keyboard & Optical Mouse

### **Software**

- Windows 11 PRO

- MS office Tools 2019 or above
- Adobe PDF Reader
- Google Earth pro
- Python 3.10 or above
- ArcGIS Desktop App
- ERDAS App
- ENVI App
- VS code
- Notepad++

9.3 The Consultant has to undertake field visits also as a part of his assignments for which travel expenses shall be reimbursed as per NCSCM rules.

## **10. INSURANCE**

The Consultant has to take personal accident insurance at his own cost for an amount of not less than Rs.10,00,000/- for which NCSCM shall not reimburse any amount.

## **11. WORKING HOURS**

The Consultant shall adhere to the office timings. They will also mark their attendance. They may be required to work on Saturday, Sunday and Gazetted holidays also, if need be, for which, no additional remuneration will be paid.

## **12. CONFIDENTIALITY OF DATA AND DOCUMENTS**

The Intellectual Property Rights (IPR) of the data collected as well as the deliverables produced for NCSCM, Chennai shall remain with NCSCM, Chennai. No one shall utilize or publish or disclose of part with details of office, operational process, technical knowhow, security arrangements and administrative/organizational matters which is of confidential/ secret nature, to a third party. The Consultant shall be bound to hand over the entire set of records of assignments to NCSCM, Chennai before the final payment released by NCSCM, Chennai.

## **13. CONFLICT OF INTEREST**

The Consultant shall in no case represent or give opinion or advice to other in any matter which is averse to the interest of NCSCM, Chennai.

## **14. TAX DEDUCTION AT SOURCE**

There shall be a deduction of Tax at Source (TDS) from the consultancy fees as per the rates of TDS fixed by the Government from time to time.

## 15. EVALUATION OF EOIs

The EOIs will be evaluated as per the following criteria –

Sl. No.	Item	Maximum Marks
1.	Ph. D. in Applications of Remote Sensing	05
2.	<p>Software Skills</p> <p><b>a) Image processing</b>  <b>Geo-Spatial Packages and Cartography</b>            ESRI ArcGIS 10x, ERDAS imagine and ENVI, Map Info or Similar (20 Marks)</p> <p><b>b) Open Source Geospatial packages</b>            Knowledge in handling QGIS &amp; Google Earth Engine (10 Marks)</p> <p><b>c) Programming languages and Data base analytics</b>            (e.g. Python, SQL, JavaScript, Oracle – Basic programming skill on Python, SQL Commands for creation of a new database, updation, selection, modification and insertion of a new database etc.) (10 Marks)</p> <p><b>d) Data processing and Deep learning</b>            Hive, Hadoop or similar            ANN, CNN, RNN or similar (10 Marks)</p> <p><b>e) Statistical Data Analysis</b>            R, SPSS, Matplot or Similar (10 Marks)</p> <p><b>f) Geographical Positioning System</b>            Trimble, Leica DGPS, Garmin or Similar (5 Marks)</p>	65
3.	<p>Minimum 5 years in remote sensing - GIS related assignments/teaching with basic programming knowledge of Python</p> <p>a) Upto 5 Year Nil</p> <p>b) 5 to 10 Years 8 marks</p> <p>c) 10 to 15 Years 16 marks</p> <p>d) 15 to 20 Years 20 marks</p>	20
4.	Publications related to Applications of Remote Sensing in Natural Resource Management in peer reviewed journals	05
5.	Experience in Mangrove mapping and Management	05
	<b>Total</b>	<b>100</b>

## **16.AWARD OF CONTRACT**

- a) Contract shall be awarded to the applicant whose proposal will be determined to be substantially responsive and having the highest marks.
- b) In case two or more candidates score the same highest mark, the candidate having more years of relevant experience (Point No.2 (c) of the above Table) shall be awarded the contract.
- c) Any effort by an applicant to influence NCSCM in its decision on evaluation or award of contract may result in rejection of the offer of the applicant.
- d) Notwithstanding the above, NCSCM reserves the right to accept any or all EoIs and to cancel the bidding process at any time prior to the award of contract.
- e) Any legal dispute arising out of this is subject to Chennai jurisdiction only.

## **17. SUBMISSION OF EOI**

The EoI shall be submitted in a single sealed envelope and super scribed as **“EoI for Hiring a Consultant-Remote Sensing” and EOI No. 3/2/2023-Proc /NCSCM/RS(2)-CON/MZAI Date: 03.08.2023**. This envelope should contain a signed hard copy of EoI along with the supporting documents in proof of the eligibility criteria as mentioned at Para 4 above.

## **18. EOI PREPARATION COST AND RELATED ISSUES**

- a) The applicant is responsible for all costs incurred in connection with participation in this process, including, but not limited to, costs incurred in preparation of EoI, participation in meetings / discussions. The NCSCM in no case will be responsible or liable for these costs, regardless of the conduct or outcome of the EoI process.
- b) This EoI does not commit NCSCM to award a contract or to engage in negotiations. Further, no reimbursable cost should be incurred in anticipation of award or for preparing this EoI.
- c) All materials submitted by the applicant shall become the property of NCSCM.

**Annexure – I**



**TERMS OF REFERENCE (TOR)  
FOR  
CONSULTANT - REMOTE SENSING**

“Mangrove Community Zonation Atlas of India”

**1. Objectives of the Project - Mangrove Community Zonation Atlas of India**

The major objectives of the project are listed below –

- Preparation of Mangrove Zonation Atlas (in digital form) depicting dominant mangrove species/ community distribution at 1:25000 SOI OSM grid for nine coastal states and 4 UT's
  - Designing of atlas (A2 size) as per the 1:25000 SOI OSM grid
  - Photo-documentation of dominant mangrove species/ communities
- State/ UT-specific write up of mangrove community distribution and area statistics
- Development of a dynamic web portal for cataloguing the spatial output for greater utilisation for mangrove conservation
- State/UT specific digital fact sheets of mangrove community distribution and extent

**2. Statement of Objectives:**

**I. Specific objectives of the service intended from the Consultant - Remote Sensing include -**

- A) Extensive field survey for Photo-documentation and ground truthing of Mangrove Community Zonation
- B) Map composition and Updating of map objects and Identification of Map Index using suitable remote sensing languages
- C) Training set creation for automated image recognition
- D) Mangrove Zonation Atlas (in digital form and hard copy) depicting dominant mangrove species/ community distribution at 1:25000 SOI OSM grid for nine coastal states and 4 UT's
- E) Assist the concerned scientist in all the activities envisaged under the project

**II. Outline of the tasks to be carried out**

The task to be carried out by the Consultant - Remote Sensing shall include -

- A) Participation in the field survey along with NCSCM staff for Mangrove zonation documentation and ground truthing/training set collection for the States of Odisha, Andhra Pradesh, Andaman-Nicobar, Maharashtra, Kerala and few select locales of Tamil Nadu.
- B) Preparation of Mangrove Community Zonation for “Mangrove Zonation Atlas” and assist in Website development
  - Assist Capturing photographs - still/ video/ Drone based aerial images of mangrove Community zones in similarity with the Zonation maps and GPS tagging
  - Documentation of the same in the report of respective State Atlas of Mangrove Zonation
  - Training set collection for automation in select locales
  - Map composition and editing
  - Preparation of Atlas in Hard and Soft form and assist in Web development

### **III. Deliverables**

- Mangrove Zonation Atlas (in digital form) depicting dominant mangrove species/ community distribution at 1:25000 SOI OSM grid for nine coastal states and 4 UT's
  - Field survey and Documentation of the photographs in the Mangrove Atlas and finalisation
  - Updating of map objects and Finalisation of map composition (593 map sheets)
  - Training set collection and automation of classes in select locales

### **IV. Final Outputs**

- Mangrove Community Zonation Atlas (digital and hard copy) – Odisha, Andhra Pradesh, West Bengal, Andaman – Nicobar, Maharashtra, Kerala and few select locales of Tamil Nadu.
- Processing of satellite images wherever necessary, ground truthing and creation of training set bank for automation, lay out designing and incorporation into Mangrove Zonation Atlas and Website
  - Periodical update of tasks and progress with specific reference to the tasks and deliverables of the project
  - Outputs in terms of Mangrove Zonation Atlas – 9 states and 4 UT's