

NATIONAL REMOTE SENSING AGENCY
(An autonomous Organisation under Department of Space, Govt. of India)
Balanagar, Hyderabad – 500 037.

EMPANELMENT OF ENTREPRENEURS

National Remote Sensing Agency (NRSA), an autonomous organization under the Department of Space (DOS), Government of India is a premier organization for the promotion of Remote Sensing (RS) and Geographic Information System (GIS) Applications in the country. With a constellation of Indian remote sensing satellites in the orbit, NRSA provides a reliable satellite and aerial data products and also the value added services. It is located at Balanagar, Hyderabad with facilities for satellite and aerial data reception, archival, processing, dissemination and offer application driven solutions. NRSA also has the responsibility to carry out key national level and user funded project for Ground Contouring, total Station surveys, GPS operations, Field data collection & field verification of geo-spatial Database, preparation of Geospatial Databases, both two dimensional and three dimensional, ranging from 1:500 to 1: 10,000 scale using image data such as stereo aerial photographs, high resolution optical satellite data, LiDAR data and terrestrial photographs. NRSA has certain projects in hand which need to be executed with very tight time schedule.

To execute some of the important time bound projects, NRSA is looking forward for short listing of firms for undertaking the specific technical job under the 'Wet Leasing Task' (field survey and working on turn key basis at NRSA premises following NRSA methodology manuals and quality parameters on accepted commercial terms) . The details at Annexure – I for Field Survey Works and Annexure – II for 2D/3D Geospatial Database Generation Works.

NRSA invites the firms which have necessary experience and proven track record in the above areas on the formats provided in the enclosed document. The received proposals would be processed through competitive process criteria and short listed. When need arises NRSA will obtain quote for the projects from the short listed firms. , NRSA would select suitable firm(s) to undertake the jobs in that project(s).

Interested firms may apply for empanelment along with a crossed Demand Draft for Rs. 10,000/- (Rupees ten thousands only) issued by a nationalised bank in favour of National Remote Sensing Agency payable at Hyderabad towards Earnest Money Deposit. The duly filled format along with DD and necessary documents are to be submitted in a sealed cover superscribing **"PROPOSAL FOR SHORT LISTING OF FIRMS FOR FIELD SURVEY SERVICES AND GEOSPATIAL DATABASE GENERATION SERVICES AT NRSA.** The last date for receipt of proposals is **9TH OCTOBER, 2007 UPTO 1500 HRS.**

You may obtain the documents from Senior Purchase & Stores Officer, NRSA on all working days from September 20, 2007 to 8th October, 2007 between 1400 hrs. & 1600 hrs. **You may also download the details** from our website www.nrsa.gov.in.

HEAD, PURCHASE & STORES

REQUEST FOR PROPOSAL (RFP)

For

Field Survey Services

National Remote Sensing Agency
Balanagar
Hyderabad – 500 037

1. Introduction

- 1.1 The National Remote Sensing Agency (NRSA) invites proposals for empanelment, from suitable firms which have the expertise, capacity and experience in Ground Control Survey services such as Ground Contouring, Total Station surveys, GPS operations, Field data collection & field verification of geo-spatial Database.
- 1.2 The objective of this RFP is to facilitate firms to participate in the short listing process by providing necessary information and guidelines for submission of their offers.
- 1.3 Short listing of the firms will be based on :
 - ✓ Experience in carrying out similar works in the past
 - ✓ Availability of infrastructure in terms of appropriate survey equipment
 - ✓ Trained manpower
 - ✓ Supervisory expertise
- 1.4 NRSA will send enquiries to the short listed firms from time to time. NRSA will award Ground Control Survey work to the firms on the basis of competitive bids received from the short listed firms. The selected firm should provide hardware, software, media, surveyors and supervisory manpower.
- 1.5 NRSA reserves the right to allot the work to one or more firms depending upon volume of work, time schedule and other operational needs, at the rate quoted by the lowest tenderer.
- 1.6 Intellectual Property Rights (IPR) for data (input, intermediate and outputs) in all the forms (hard & soft copies) will vest solely with NRSA.
- 1.7 It is the responsibility of the short listed Firms to arrange to submit attested copies of character and antecedents verification reports issued by the concerned local police station of their employees who are to be deployed for doing the allotted work.
- 1.8 Payment, after completion of tasks, will be effected as per existing NRSA procedures.

2. Technical Requirement

2.1 Task Components : Components of Ground Control Survey Services are listed below:

- ✓ Total Station operations
- ✓ Ground Contouring (DT / ST Leveling)
- ✓ GPS Survey operations
- ✓ Field verification
- ✓ Field Data collection

The above-mentioned activities have to be carried out as per the time schedule, accuracy and other specifications mentioned in the work order.

2.2 Input Data : Following inputs will be provided by NRSA in order to carry out Field Surveys (as applicable to the task):

2.2.1 Aerial / Satellite hardcopy imageries (A representative of NRSA will be also be sent to field with these inputs)

2.2.2 Distribution plan of GCPs for GPS Survey

2.2.3 Hardcopy of geo-spatial data

2.2.4 List of themes to be collected from ground for incorporation onto the Geo-Spatial databases

2.2.5 A form which needs to be filled up with detailed information of surveyed ground features (specifications will be given at the time of issue of work order) for developing utility GIS.

2.3 Quality Assurance Procedure: A dedicated Quality Assurance Manager of the firm will have to look after the internal Quality Assurance of all Ground Control Survey tasks. He should be authorized by the firm to certify the quality of the data before submission to NRSA Quality Assurance team. All the output

data generated has to be certified for its quality and meet the accuracy standards mentioned in our work order. Resultant error budget for measured / closing error at GCPs / check points should be presented in form of table to NRSA QC team.

2.4 Quality Control Check by NRSA : A team from NRSA will carry out quality assessment. Team will check samples and will also go through the error budget tables prepared by the firm's quality assessment team. If the work is not satisfactory and not meeting the project standards & time schedule, then the entire work order will be cancelled / repeated. In case of repetitions, no additional cost will be entertained.

2.5 Deliverables

2.5.1 GPS control points list with processed coordinates (both in softcopy & hardcopy)

2.5.2 Leveling charts with computation sheets (including Double Tertiary, Single Tertiary lines, Spot heights, Bench Marks etc)

2.5.3 Field verified Geo-spatial data

2.5.4 Field data collection of important landmarks in the prescribed format.

2.5.5 Field data collection for any utility GIS projects such as for Municipal GIS, Power GIS, Water & Sewerage GIS (List of attributes to be collected to be enclosed with the work order).

2.5.6 All the field notebooks / charts / worked out material / field sketches shall be submitted to NRSA.

3. Eligibility Criteria

3.1 The firms should have carried out Ground Control Survey work in the past 3 years (2003-2004, 2004-2005, 2005-2006).

3.2 During the past three years, the firm should have carried out at least

3.2.1 A total of 500 line kms of Leveling for 1 / 0.5 m contours.

3.2.2 200 GPS points observations & processing for preparation of Geo-Spatial Database in 1: 2000 scale.

3.2.3 200 sq.kms of field verification & data collection.

(Note: if a firm has experience in only one or two of the above, the firm will be considered for shortlisting for those field survey works only)

Please enclose appropriate documents / work orders for proof along with license & invoice details for the survey equipments & corresponding software

3.3 Firm should have minimum infrastructure comprising of

3.3.1 5 Geodetic / Survey grade dual frequency GPS receivers with standard software

3.3.2 3 each Digital / Auto levels & Total stations.

3.3.3 Skilled trained manpower with 3 years of survey experience.

(Note: If a firm owns only one or two of the above, the firm will be considered for shortlisting for those field survey works only)

Please enclose appropriate documents for proof along with license & invoice details for the software.

3.4 The firm should be a registered firm and should be filing sales tax and income tax returns for the past three years (2003-2004, 2004-2005, 2005-2006). Documentary evidence in support of this should be enclosed with the application.

**Application form for Shortlist of Firms
for
Field Survey Works**

(Attach separate sheets for any item where space is inadequate)

| | | |
|----|---|--|
| 01 | Name and Address of the Firm with contact telephone / fax and e-mail | |
| 02 | Name of the proprietor or head of the firm | |
| 03 | Firm registration details with date of incorporation (Attach copy) | |

| | | |
|-----|--|--|
| 04 | Surveyors who are on the rolls of the firm (Please attach additional sheets as required) | |
| 4 a | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 b | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 c | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 d | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |

| | | |
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| 05 | Supervisory employees who are on the rolls of the firm (Please attach additional sheets as required) | |
|----|--|--|

| | | |
|-----|---------------------------|--|
| 5 a | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 b | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 c | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 d | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 e | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 f | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 g | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |

| | | |
|-----|---|--|
| 06 | Field Survey operations experience (Please attach additional sheets as required) | |
| 6 a | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | GPS survey (points) | |
| | Contour Interval | |
| | Any other matter | |
| 6 b | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | GPS survey (points) | |
| | Contour Interval | |
| | Any other matter | |
| 6 c | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | GPS survey (points) | |
| | Contour Interval | |
| | Any other matter | |
| 6 d | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | GPS survey (points) | |
| | Contour Interval | |
| | Any other matter | |

| | | | | |
|----|--|--|--|--|
| 07 | Turnover in last three years (please enclose IT returns/ audited accounts statement) | | | |
| | Year | | | |
| | Company Turnover in Rs. Lakhs | | | |
| | Turnover from Ground survey works | | | |

| | | |
|----|---|--------------------------------|
| 08 | Geodetic Dual frequency GPS receiver configuration and number of such systems | (please attach separate sheet) |
|----|---|--------------------------------|

| | | |
|----|---|--------------------------------|
| 09 | GPS data processing Software packages names and licence details along with number of licences | (please attach separate sheet) |
|----|---|--------------------------------|

| | | |
|----|--------------------------|--------------------------------|
| 10 | Survey equipment details | (please attach separate sheet) |
|----|--------------------------|--------------------------------|

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|----|----------------------------|---|
| 11 | Other relevant information | (please attach company profile, brochure and any other material deemed fit) |
|----|----------------------------|---|

Signature of authorized representative

With Office Seal

Dated:-----

REQUEST FOR PROPOSAL
(RFP)

For

Geospatial Database Generation
Services

National Remote Sensing Agency
Balanagar
Hyderabad – 500 037

Introduction

- 1.9 The National Remote Sensing Agency (NRSA) invites proposals for empanelment, from suitable firms which have the expertise, capacity and experience in preparation of Geospatial Databases, both two dimensional and three dimensional, ranging from 1:500 to 1: 10,000 scale using image data such as stereo aerial photographs, high resolution optical satellite data, LiDAR data and terrestrial photographs.
- 1.10 The objective of this RFP is to facilitate firms to participate in the short listing process by providing necessary information and guidelines for submission of applications.
- 1.11 Short listing of the firms will be based on :
- ✓ Experience in carrying out similar works in the past
 - ✓ Availability of infrastructure in terms of hardware and software
 - ✓ Trained manpower
 - ✓ Supervisory expertise
- 1.12 NRSA will send enquiries to the short listed firms from time to time. NRSA will award 2D/3D Geo-spatial Database generation work to the firms on the basis of competitive bids received from the short listed firms. NRSA reserves the right to allot the work to one or more firms depending upon the volume of the work, time schedule & other operational needs at the rates quoted by the lowest tenderer.
- 1.13 Space with power and air conditioning will be provided by NRSA at NRSA premises. **Whenever work is awarded, the firm should be willing to work within NRSA premises and follow all the applicable security rules including rules regarding media handling.**
- 1.14 The selected firm should provide hardware, software, peripherals, media, furniture, technical manpower and supervisory manpower. Necessary upgrades and modifications to the systems will need to be implemented as per the requirements of the tasks.
- 1.15 Intellectual Property Rights (IPR) for data (input, intermediate and outputs) in all the forms (hard & soft copies) will vest solely with NRSA.

- 1.16 It is the responsibility of the short listed Firms to arrange to submit attested copies of character and antecedents verification reports issued by the concerned local police station of their employees who are to be deployed for doing the allotted work.
- 1.17 Payment, after completion of tasks, will be effected as per extent NRSA procedures.
- 1.18 Maintenance of the systems positioned at NRSA will have to be carried out by the firms at their own cost. Hard disks and storage media will not be permitted to be taken out of NRSA premises.

1. Technical Requirement

2.6 Task Components : Components of Geo-spatial database preparation tasks are listed below:

- ✓ Digital Elevation Model (DEM) generation
- ✓ Orthorectification
- ✓ Generation of 2D / 3D geo-spatial databases
- ✓ Updation of 2D / 3D geo-spatial databases
- ✓ Photogrammetric Contouring

After the orientation of stereo models, creation of geo-spatial database has to be carried out. The geo-spatial database generation should be carried out as per the data model / layer names defined in the applicable work order as per the “**Guidelines for 3D / 2D Geo-spatial Database generation through Stereo compilation**” document prepared by NRSA which will be provided along with work orders. In addition to the above document if there are any specific project requirements, a separate document with specific guidelines / amendments will be issued. The above-mentioned activities have to be carried out as per the time schedule, accuracy and other specifications mentioned in the work order.

2.7 Input Data : Following inputs will be provided by NRSA in order to create 3D geo-spatial databases:

2.7.1 Scanned aerial imageries

- Run wise imageries (coverage as per the scale)
- Image format –TIFF
- Camera calibration file

2.7.2 Triangulation / Block adjustment files

2.7.3 Adjusted coordinates file

- Image coordinates
- Exterior Orientation (EO) file –(eg : PATB & SocetSet format)

2.7.4 Satellite image data

High resolution satellite images with necessary ancillary data for corrections or rectified satellite imagery

2.7.5 Area of Interest Map / Coordinates

- File format – Autocad / tiff
- Index diagram marking the area of mapping including the restricted area overlaid with flight lines.

2.7.6 Field verification / data collection

- Important landmarks names collected from field for incorporation onto the digital maps

2.8 Quality Assurance Procedure: A dedicated Quality Assurance Manager of the firm will have to look after the internal Quality Assurance of all on-going mapping tasks. He should be authorized by the firm to certify the quality of the data before submission to NRSA Quality Assurance team. Each stereo model / models generated has to be certified for its quality. The executing firm will form an internal quality team to carry out the accuracy assessment. Resultant error budget for measured error at GCPs / check points should be presented in form of table to NRSA QC team. Features captured through stereo compilation will be edge matched between the models & firms. The edge matching should be within the stipulated acceptable limits. In case parts of a large block is awarded to multiple firms, edge matching with adjacent data of other firms must also be carried out.

2.9 Quality Control Check by NRSA : A team from NRSA will carry out quality assessment. Team will follow the same steps as in the above mentioned quality assurance procedure to assess a minimum of 25% samples and will also go through the error budget tables prepared by the firm's quality

assessment team. The geospatial databases will be evaluated based on the checklist mentioned in the “**Guidelines for 3D / 2D Geo-spatial Database generation through Stereo compilation**”. For any non-compliance with the requirement, the whole exercise of quality assurance by the firm (internal QAS) and quality control checks by NRSA (external QAS) will have to be repeated. If the work is not satisfactory and not meeting the NRSA standards & time schedule, then the entire work order will be cancelled.

2.10 Deliverables

Sheet wise 2D/3D Geo-spatial database for the entire region as per the index provided by NRSA and within the specifications in and specified formats (DWG & DXF) will be accepted only after the clearance by NRSA QC team. The base geo-spatial features and height information will have to be in vector format in appropriate layers as per the specifications in the work order. The 2D / 3D vector data prepared should be able to export to GIS platform for usage in different applications.

2. Eligibility Criteria

- 3.5 The firms should have carried out 2D/3D Geospatial database generation work in the past 3 years (2003-2004, 2004-2005, 2005-2006).
- 3.6 During the past three years, the firm should have carried out at least a total of 500 sq km of 3D spatial data base generation in a scale equal or better than 1:2500 scale.
- 3.7 During the past three years, the firm should have carried out at least a total of 200 sq km of contouring with a contour interval of better than 2 m through photogrammetric techniques
- 3.8 Firm should have minimum infrastructure comprising of (i) 5 Digital Photogrammetry Work Stations (DPWS) with standard software & hardware and (ii) 5 systems with 2D drafting packages. Please enclose appropriate documents for proof along with license & invoice details for the software.
- 3.9 The firm should be a registered firm and should be filing sales tax and income tax returns for the past three years (2003-2004, 2004-2005, 2005-2006). Documentary evidence in support of this should be enclosed with the application.

**Application form for Shortlist of Firms
for
2D / 3D Geospatial Database Generation Works**

(Attach separate sheets for any item where space is inadequate)

| | | |
|----|---|--|
| 01 | Name and Address of the Firm with contact telephone / fax and e-mail | |
| 02 | Name of the proprietor or head of the firm | |
| 03 | Firm registration details with date of incorporation (Attach copy) | |

| | | |
|-----|---|--|
| 04 | Technical employees who are on the rolls of the firm (Please attach additional sheets as required) | |
| 4 a | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 b | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 c | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 4 d | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |

| | | |
|-----|---|--|
| 05 | Supervisory employees who are on the rolls of the firm (Please attach additional sheets as required) | |
| 5 a | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 b | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 c | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 d | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 e | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 f | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |
| 5 g | Name | |
| | Qualification | |
| | Experience | |
| | Working in the firm since | |

| | | |
|-----|--|--|
| 06 | 3D Geospatial data base generation experience (Please attach additional sheets as required) | |
| 6 a | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 6 b | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 6 c | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 6 d | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |

| | | |
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| 07 | 2D Geospatial data base generation experience (Please attach additional sheets as required) | |
| 7 a | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 7 b | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 7 c | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |
| 7 d | User Name | |
| | Work order reference (attach copy) | |
| | Area extent | |
| | Period of work | |
| | Scale | |
| | Contour Interval | |
| | Any other matter | |

| | | | | |
|----|--|--|--|--|
| 08 | Turnover in last three years (please enclose IT returns/ audited accounts statement) | | | |
| | Year | | | |
| | Company Turnover in Rs. Lakhs | | | |
| | Turnover from 3D Database generation works geospatial | | | |
| | Turnover from 2D Database generation works geospatial | | | |

| | | |
|----|--|--------------------------------|
| 09 | Production systems (DPWS and drafting systems) Hardware configuration and number of such systems | (please attach separate sheet) |
|----|--|--------------------------------|

| | | |
|----|--|--------------------------------|
| 10 | Software package names and licence details along with number of licences | (please attach separate sheet) |
|----|--|--------------------------------|

| | | |
|----|----------------------------|---|
| 11 | Other relevant information | (please attach company profile, brochure and any other material deemed fit) |
|----|----------------------------|---|

Signature of authorized representative

With Office Seal

Dated:-----