

M.P. State Electronics Development Corporation Ltd.
(A Govt. of M.P Undertaking.)

TENDER DOCUMENT

For

**Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh.
(The System so developed will be known as Remote Sensing & GIS of MP)**

(Tender no. Mpsedc/Mkt/2011/208)

(All pages of this document except for Commercial-bid to be submitted in original duly signed on each page along with the technical bid envelope. The Commercial bid in original is to be enclosed in a separate sealed envelope)

M.P. State Electronics Development Corporation Ltd.
(A Govt. of M.P Undertaking.)
147, Zone-I, M.P. Nagar, Bhopal-462011 (M.P.)
Ph.0755-2769816, 2769823
Fax: 0755-2769824

Technical Bid

INVITATION FOR BIDS

Addl. Chief General Manager, MPSEDC Ltd., Bhopal invites sealed bids in two envelopes system, from bidders for Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh. (The System so developed will be known as Remote Sensing & GIS of MP). Interested bidders may obtain further information from the office of MPSEDC Ltd., Bhopal Bids are invited for the work mentioned hereunder:

S.N	Items	Description
a	Scope of Work	Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh.
b	Cost of bid document	Rs.5000.00 (non-refundable) by Demand Draft/Cash
c	Postal charges	Rs.100.00(MPSEDC LTD. shall not be responsible for any postal delay)
d	Pre bid meeting	8.11.11 at 3 PM.
e	Sale of bid documents	Date 29.10.11 to 21.11.11 (Between 10.30 AM to 5.30 PM)
f	Last date of submission of bid	Date 22.11.11 up to 3.00 PM.
g	Date of opening of technical bid	Date 22.11.11 at 4.00 PM.
h	Bid Security	Rs.2,00,000/- in the form of Demand Draft payable to MPSEDC Ltd at Bhopal or Bank Guarantee in the format that would be provided later.
i	Place of opening of bids:	Office of MPSEDC LTD., 147, Zone-1, Maharana Pratap Nagar, BHOPAL (M.P.)
j	Address for communication:	MPSEDC LTD., 147, Zone-1, Maharana Pratap Nagar, BHOPAL (M.P.)

Note; Tender can be downloaded from the website www.mpsedc.com. In case tender form has been downloaded from the website, the tenderer will have to enclose a Demand Draft of Rs.5000/- (Rupees Five thousand only) of any scheduled bank in favour of MPSEDC Ltd. payable at Bhopal along with the tender.

***Any future Corrigenda/Information shall be posted only on our website www.mpsedc.com**

Letter for Submission of tender

To
MPSEDC
147 Zone I, M P Nagar
Bhopal (M P)

Dated ----- ,2011.

Ref: "Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh" against tender No MPSEDC /Mkt/2011/208 dated 29.10.11 due for opening on 22.11.11

Dear Sir,

Having examined the tender document relating to the Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh as detailed in your tender, Terms & Conditions and scope of procurement, Specifications etc., and having understood the provisions and requirements relating to the procurement and all other factors governing the tender, We hereby submit our offer for the GIS project in accordance with terms and conditions and confirm our acceptance to execute the order within the time period specified in the tender document, at the rates quoted by us in the accompanying Technical & commercial Bid.

If, after the tender document is accepted, we fail to complete the commissioning of the items as per the order we agree that, M/s. MPSEDC LTD. Bhopal shall have full authority to forfeit the Bid Security and cancel our order with no obligation on their part.

We confirm having deposited Bid Security of Rs 2,00,000/- (Rupees Two lakh only) by Demand Draft No.....dated drawn onBank Branch or a Bank Guarantee in the format prescribed at Annexure-I attached here to, and general information required are as per annexure attached.

We further confirm that –

- i. We have successfully executed orders of similar nature and we have sufficient experience and financial strength in handling orders of this value.
- ii. We have sufficient qualified manpower and necessary materials and after sales support to execute the order efficiently in the specified time schedule.
- iii. The quoted rates shall be valid till the completion of the order but not less than 180 days.
- iv. We further confirm that all chapters of the tender documents have been read, understood and signed and there is no deviation/discrepancy

Signature of the Tenderer
With stamp and date

GENERAL INFORMATION AND BID SECURITY DETAILS

1	Bid Security Details DD No and date: Amount in Rs. Name of the Bank: Or Bank Guarantee	
2	Name and Address of the Bidder: (Should have an office in Madhya Pradesh or should undertake to open in one month if the work is allotted)	
3	Contacts:	
4	Telephones:	
5	Fax:	
6	E-mail:	
7	Mobile No:	
8	Category of the Bidder (Whether company, partnership firm or Proprietary concern)	
9	Name of Chief Executive Officer and Telephone No.	
10	Year of Establishment	
11	Sales Tax /Commercial Tax/ CST nos.	
12	Income Tax PAN/GIR No.	
13	Yearly Turnover of the Last 3 years.	
14	Name and Address of the Banker	
15	List of major Clients and the size of orders executed	

Note: Separate sheets may be attached wherever necessary.

Signature of the Tenderer
With stamp and date

Terms and Conditions

Contents of Bidding Documents for **Remote Sensing based Land use change Data series and Geographical Information System (GIS) interpolation with capability of internet based access and layer creation capability for the various Departments of Government of Madhya Pradesh**, the bidding procedures and the terms of contract are prescribed here in under:

1. Eligibility Criteria:

- a. Bidder must have executed at least two GIS and Remote Sensing based software system design and deployment orders of value Rs. 100 Lakh or more and at least one single order worth of Rs. 150 lakh of GIS and Remote Sensing system must have been executed by the bidder. (Attach order copy)
- b. The company must have an average turnover of Rs 5.00 Crore in the past three years from the business GIS based monitoring system of any description (Submit balance sheet of the previous years for the purpose of verification). Certificate from the Chartered Accountant must be submitted if the Bidder has other businesses in the company.
- c. The company must be profitable and must have positive net worth.
- d. Consortiums are allowed to the maximum extent of two company one prime bidder with more than 50% stake and the other a minority partner.

2. Amendment in Bidding Document by the Competent Authority

At any time prior to the deadline for the submission of bids, the competent authority may, for any reason, whether on its own or in response to a clarification requested for by a prospective bidder, modify the bidding document by way of amendment(s).

The prospective bidders having received the bidding documents will be notified of the amendment(s) so made in writing or by Fax and such amendments shall be binding on them.

In order to allow reasonable time to the prospective bidders for taking into account such amendment(s), in the preparation of their bids, the competent authority, at its discretion, may extend the deadline for the submission of bids.

3. Bid Price

The bidders shall indicate the price on the prescribed Price Schedule, including item-wise and final Bid Price of the items listed

Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and shall not be subject to variation on any account.

A bid submitted with an adjustable price will be treated as non-responsive and rejected.

4. The EMD may be forfeited:

If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form: or In case of a successful Bidder, if the Bidder fails:

- (i) To accept the order
- (ii) To furnish performance security
- (iii) If the supplier, after accepting the purchase order fails to deliver the material/services as per the order.

5. Any alterations, erasures or overwriting shall be valid only if the person or persons signing the bid initial them.

6. Technical requirements

The technical specifications as per Annexure-I are the minimum configuration required. Higher specifications may be considered but no price weightage for higher specifications shall be considered.

7. Service support requirement

The service support will require training on the system for the users of the Departments. The acceptance for doing so with no extra cost is to be submitted along with the bid.

SUBMISSION OF BIDS

8. Sealing and Marking of Bids

The bidders shall submit Bid Security, technical bid (containing the technical specifications offered and original copy of commercial bid in separate sealed, envelopes all the above envelopes shall be sealed in one main envelope). All the envelopes should be distinctly marked Bid Security, technical bid, and commercial bid.

9. Payment:

Payment: Payment shall be released by MPSEDC as per details given in SLA Annexure III:

10. Deadline for Submission of Bids

Bids must reach to the competent authority at the address specified but not later than the time and date specified in the invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the office of the competent authority, the bids will be received up to the appointed time on the next working day.

11. Late Bid

Any bid received after the deadline for submission of bids prescribed by the competent authority, will not be accepted and returned unopened to the bidder.

BID OPENING AND EVALUATION OF BIDS

12. Opening of Bids

Since it is a Two-bid system, Technical and EMD envelope will be opened first by the Committee constituted for this purpose. If the technical bid specifications offered, EMD and deviations asked (if any) are found in order, the Committee will open commercial bid only for the eligible bidders.

The Committee will open the bids, in the presence of Bidders' representatives who choose to attend on the date specified at the following location:

The Additional Chief General Manager
M.P. State Electronics Dev. Corpn. Ltd
147, Zone-I, Maharana Pratap Nagar, BHOPAL-462011

Prospective Bidder representatives shall sign a register evidencing their attendance.

In case, the commercial bid is not opened on the same or next day of opening of technical bid the Committee may decide to open the commercial bid on subsequent dates. In such case the date, time and place of opening of commercial bid will be intimated to the bidders or their representatives.

13. Preliminary Examination

Before starting evaluation, the bids will be examined to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. In case of computational error the basic price will prevail.

If bid is determined as not substantially responsive, the competent authority will reject it and only the substantially responsive commercial bids will be considered.

The process of evaluation of bid is as follows:

- (i) The Committee, appointed by the MPSEDC LTD, will first verify that the Bank Draft or Bank Guarantee for Bid Security is in order and as per requirement of the bid. The Committee will examine the bid on Eligibility Criteria as specified. The scrutiny of technical proposals will be based on the Evaluation Criteria provided in this bid document.
- (ii) The commercial bid will be opened only for the proposals, which are found eligible and technically acceptable by the Committee and approved. On the day specified for the opening of bid, the Committee, appointed by the MPSEDC LTD., will open the commercial bids of eligible bidders and scrutinize the same minutely.
- (iii) After scrutiny, the MPSEDC LTD. After having examined the proposal may accept the same or accept the bid price of any other bidder found suitable or reject all or any proposal. The decision of the MPSEDC LTD. In this regard shall be final and binding.

14. Performance Security

The successful bidder shall be required to submit performance bank guarantee in the format that will be provided by MPSEDC to the successful bidder. The Guarantee will be for 10% of the total value of the bid.

15. Contacting the Competent Authority

Any effort on part of a Bidder to influence the Competent Authority or members of Technical/Monitoring committee, in its decisions on bid evaluation; bid comparison or contact award may result in rejection of the bidder's bid.

16. General

- (i) Bid form shall be duly filled in, signed and complete in all respects
- (ii) The price should be inclusive of FOR destination basis and exclusive of taxes and local levies if any.
- (iv) The rates should be free from all escalation **should not include taxes and duties which will be paid by MPSEDC.**
- (v) The successful bidder will install the web based system as detailed in the tender within 60 days of the receipt of the work order from MPSEDC.
- (vi) Penalty- In case of delay in execution of the order, is defined in the Service Level Agreement (SLA)

The inner and outer envelopes shall be addressed to the competent authority at the following address:

The Additional Chief General Manager
M.P. state Electronics Dev. Corpo. Ltd
147, Zone-I, Maharana Pratap Nagar, BHOPAL-462011

The envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared "late."

If the outer envelope is not sealed and marked, the competent authority will assume no responsibility for the bids, misplacement or premature opening.

Telex; cable facsimile or fax bids will be rejected.

Conditional bids are liable to be rejected.

MPSEDC LTD. does not bind itself to accept the lowest or any other tender and reserve the right to accept or reject any or all the tender in full or in part without assigning any reason.

Bid Submission Format

S.No	Description	Monthly Guaranteed Revenue (MGR) in Figures	Monthly Guaranteed Revenue in Words
1	<p>The cost to MPSEDC as detailed in the Scope (Annexure 1) and the Hardware and Software, manpower and GIS service as detailed in Annexure 2 should be converted into a monthly guaranteed revenue which will be paid after the Data Center is established and on compliance with the SLA as defined in Annexure 3. It should be noted that amount will be deducted from the monthly guaranteed revenue if the Bidder fails to comply with the SLA.</p> <p>The tenure of the contract will initially be for the period of Five years and can be extended for a period of Three years.</p>		
	Total Project cost for Five years = MGR*5*12		

Scope of work

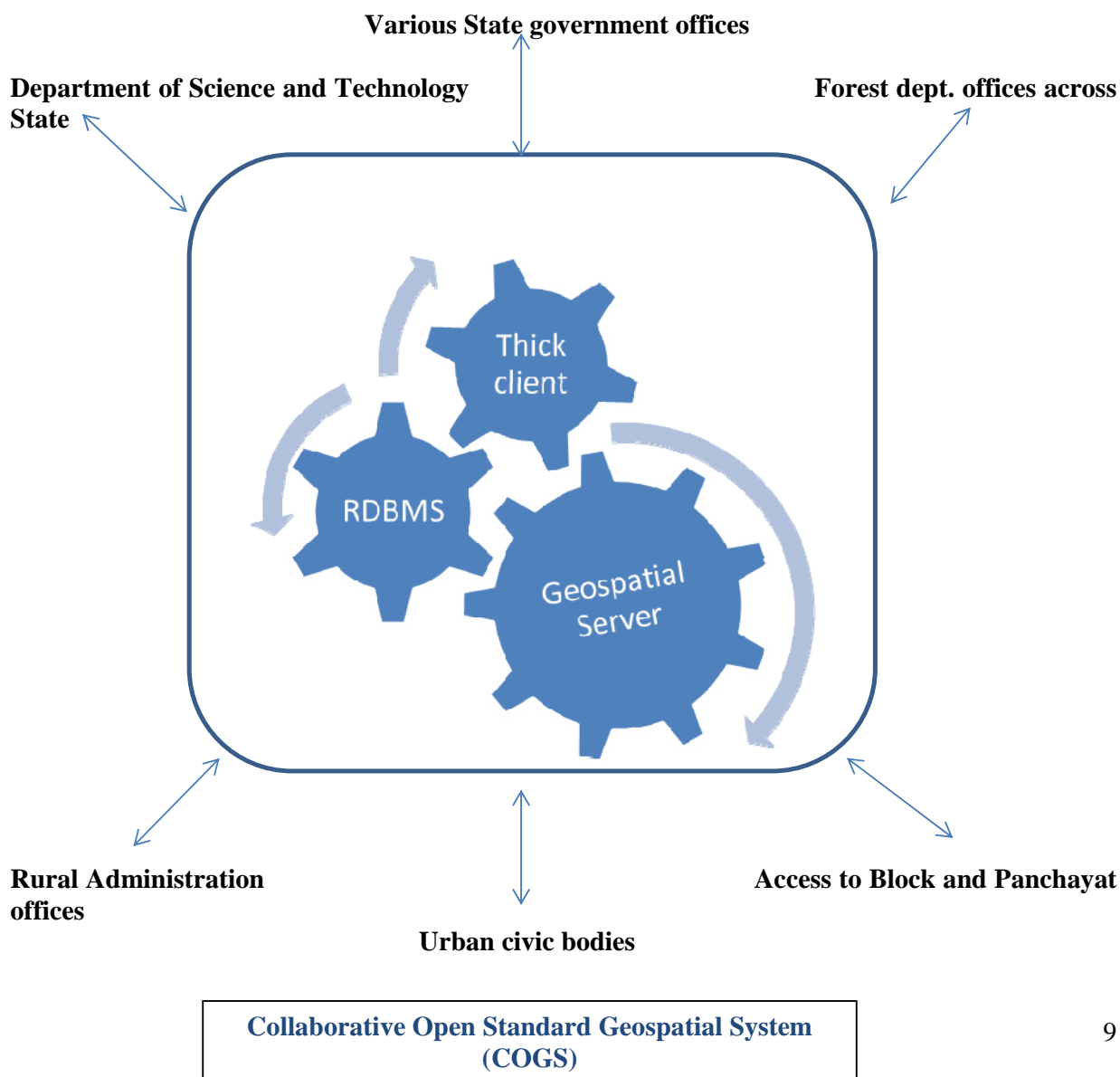
Collaborative Open standard Geospatial System for MP State Government

Objective:

Purpose of this document is to create a Collaborative Open standard Geospatial System (COGS). The proposed solution should be based on International Standards and it should follow the **OGC and ISO** concepts for describing and delivering the data totally in non-proprietary format i.e. does not have to be dependent on any one particular format and can use any application that can consume OGC Web Services.

The proposed solution should build on ‘**Service Oriented Architecture**’ (SOA). All the data can be made reusable in several applications by different users. All the data are served as services and most of applications (thick clients or thin clients) can access such OGC compliant services.

System requirement:



The proposed solution should create a system where in all the participants organizations should be able to share and edit geospatial data among themselves through HTTP protocol, this geospatial data should be accessible through a central server preferably in the form of web services. The number of participating organization may change as per administrative committee's requirements. *Above diagram is representative in nature.*

General

1. The proposed solution should support clustering; multiple servers may be used to increase scalability, while appearing to be a single server to the administrator. The clustered environment may create support for more concurrent users.
2. There should be an option to create footprint (Both extent based and Precise) automatically for the datasets. This feature allows end-user to view the extents of any data in a spatial map without actually downloading or selecting it.
3. Should have the concept of automatic crawling and metadata harvesting. An administrator should be able to actually serve data (or a set of data) without worrying about the new or changed data. The system must do the following tasks automatically:
 - a. Metadata harvesting and cataloguing from raster datasets
 - b. Footprint generation
 - c. Thumbnail generation
 - d. Image Pyramid generation
4. Support for Coordinate Transformation and user definable datum. An administrator should be able to create and add custom coordinate system, and should support all EPSG codes, also the proposed solution should support coordinate transformation on the fly via OGC Coordinate transformation **CT 1.0**.
5. The proposed solution should support following RDBMS's for cataloguing:
 - a. Postgres 8.3 onwards
 - b. SQL server 2008
 - c. Oracle 10G R2 onwards
 - d. DB 2 [IBM]
6. The proposed solution should be completely comprehensive in supporting multiple protocols. The proposed solution should have the OGC Web Services like **WMS, WFS, WCS, WFS-T, WPS and WMTS** and all in one package.
7. The Firm quoting the solution should produce Compliant Certificates from OGC namely OGC WMS, OGC WCS, OGC WFS & OGC WFS-T
8. Supported operating system for the server should be Microsoft Windows Server 2003 \ 2008 - R2 64-bit.
9. The solution should run and support Windows server 32 bit and 64 bit architectures, Should run in a true 64 bit mode on a 64 bit OS i.e. the application server and JVM must run on 64 bit mode.
10. It should be Configurable to a mail server for email notifications
11. The proposed solution should support for GML at the client as well as at the server side.
12. In addition to the OGC Web Services, the system also should support SLD: the OGC styling language to portray maps from WMS, WFS and WCS services.
13. The proposed solution should offer updating feature and vector data through OGC **Transactional WFS (WFS-T)** interface.
14. There should be a complete installer of the server which must perform all major configuration tasks automatically like:

- a. There should be a provision of automatic Database configuration while installing the server
 - b. Automatic port configuration of the application server while installation
 - c. Automatic deployment of deployables into application server while installation (no post installation configuration required into application server)
15. Should support following functions for data management:
- a. Remote management of data: an admin must be able to manage all raster and vector data from anywhere in the network without having the dependency of any other application or desktop software.
 - b. Hierarchical data management: The server should support automatic handling of Hierarchical data management, wherein the data and metadata must be clubbed accordingly
 - c. Security management with access security over data and role based geospatial security over same datasets without altering the datasets
 - d. Pyramid management (Server Side) for Rasters
 - e. Footprint management
 - f. Thumbnail management
 - g. Geospatial Raster Data Crawlers
 - h. Job Management and scheduling system
 - i. ISO Metadata Editor and harvester
 - j. Service cataloguing
16. The web client must support internationalized interfaced complied to I18n standards

Security

1. Fine grained **security system**. The proposed solution should secure data depending on the following parameters:
 - a. Spatial extent (for restricted areas)
 - b. Depending on a scale
 - c. Depending on the data and type of user.
 - d. Depending on resolution (Globally i.e. Irrespective of any users or datasets)

An administrator can set permissions and restrictions. Feature like ‘**polygon masking**’ that hides the restricted or sensitive information from the end-users is mandatory. An administrator should be able to configure spatial masking security, and re-sampling resolution.
2. With fine grained security the solution should actually serve same data for different kind of users for different purposes. Data provisioning should also be included.
3. The proposed solution supports authentication compatible to many IT standard technologies like Active Directory, LDAP, Database, CAS, JAAS, etc.

Catalogue & Metadata

1. The **cataloguing** must be based on OGC standard **CS-W** and an eBRIM profile.
2. The proposed solution should have a “full” ISO 19115/19119/19139 support for resource and service metadata management and encoding. So in the end WYSIWYG. An administrator can edit and update the metadata information.
3. The solution should catalogue geospatial information by harvesting metadata and persist it in a central, searchable catalogue. Simple harvesting from SAN with thousands of imagery with footprints & thumbnails should take approximately less than **30 seconds per raster dataset (Excluding pyramid generation ‘if required’)**.
4. The proposed solution should support Batch Metadata Editing over an ISO 19115 Metadata Schema.

Data Portrayal and delivery

1. The system must stream high volumes of data over Enhanced Compressed Wavelet Protocol
2. The proposed solution should perform complex raster processes like DRA, Re-projection on the fly, Contrast enhancement both on server side as well as on client side on the fly on a browser.
3. The proposed solution should perform interactive Symbology over OGC compliant SLD both on server side and Client Side.
4. The proposed solution should support for GML2 and GML3: the only open geospatial data model language to define and exchange your objects.
5. An administrator can define or generate the feature model to serve the vector data as an OGC WFS. Irrespective of the data format, coverage data can be served as an OGC WCS.
6. In addition to the OGC Web Services, the system also should support SLD: the OGC styling language to portray maps from WMS, WFS and WCS services.
7. An administrator should be able to provision updating feature and vector data through OGC **Transactional WFS (WFS-T)** interface.
8. The proposed solution should have Servlet Components, such as an OGC-compliant WFS with portrayal abilities and built-in WMS, an OGC- compliant WMS with support for geo-referenced tiffs, BILs, JPEGs, a MapDressing servlet to support map production.
9. Over a thousand Coordinate Transforms and user definable datum should be supported. An administrator can create and add custom coordinate system to this system, for this The proposed solution should support all EPSG codes.
10. The proposed solution should perform interactive symbology over OGC compliant SLD both on server side and Client Side.

Processing

1. The proposed solution should consume data directly from the Oracle Spatial and PostGreSQL 8.5 with PostGIS without any bridge or middleware directly from native tables.
2. The proposed solution should have “**geo-processing**” capabilities through OGC WPS.
3. The proposed solution should have “**On-The-Fly Reprojection**”, and “**On-The-Fly Mosaic**” functionalities.
4. Users should be able to discover and execute Raster Geoprocessing Models via OGC WPS published on the server and visualize the results on the collaborated 3D Globe view.
5. The proposed solution should perform complex raster processes like DRA, Reprojection on the fly, Contract enhancement both on server side as well as on client side on the fly.
6. Should be able to execute the spatial models using the 2D browser Client and the 3D Viewer.

Data Upload \ Download \ Sharing (Collaboration)

1. Apart from this, the proposed solution should have data download functionality for **image \ Raster extraction** and delivery. Data served via WCS can be used to accomplish this task. This system allows the administrator to configure download options through HTTP or FTP. Metadata information can be clubbed together with the data and end-user can download the contents in a zipped file.
2. While downloading raster datasets, user must be able to specify the following:
 - a. Interpolation technique
 - b. Data format
 - c. Spatial resolution

d. bands

3. There must be a support for multiple Coverage data and output formats like NITF, compresses GeoTIFF, JPEG2000, DTED, ECW, etc.
4. In addition to this, there should be an additional support for KML and GeorSS output formats for most of our services.
5. A user shall be able to directly download all vector data as shapefiles, gml files or kml files.
6. A user at the client side (web client) should be able to upload shape files and GML files locally which should be available as OGC WFS on the fly and OGC WFS-T on the fly (In case of Gml files), and the same on the fly service should be available to other users which are connected to the server via. The same client. These users must be able to query, filter and download the shared data, and also they should be able to edit (Both spatial and attributes) the service in case it is an OGC WFS-T on the fly.
7. Allow to Geo-Collaborate all the connected users working together on a common data set on a 3D Globe interface similar to Google earth
8. Generate unique Collaboration IDs and keys directly from the Collaboration Registry Admin Tool.
9. The collaborative 3D client should be able to connect to any OGC Server and consume OGC compliant WMS, WCS and WPS services.
10. The proposed solution should be possible to add local vector and raster data on top of the 3D Client and collaborate or Share this local data on the collaboration network, similarly users should also be able to Collaborate using web services.
11. Should allow connected users to have a geospatial chat
12. Should allow users to share their saved screens (Worlds) along with the each other.
13. **Admin tool** to Manages login requests and user authentication for collaboration

TECHNICAL SPECIFICATIONS AND COST SHEET FOR DATA CENTRE

SI.No	Name of the Hardware and Specification	Number	Description of the product offered	Unit Cost	Total Cost
1	Chassis for Blade Server can accommodate 14 or more Blades Page 13 & 14	1			
2	Blade Servers Intel Xeon Page 15	3			
3	Router Cisco Page 17 and 18	1			
4	Switch Page 19	1			
5	KVM Switch	1			
6	Storage System (SAN + NAS) 5 TB Page 19 and 20	1			
7	UPS 5KVA with 1 hrs backup Page 21	1			
8	Tape Drive Page 19	1			
9	Operating System as detailed in the scope	3			
10	Database Processor Licence	2			
11	Map Server	1			
12	Antivirus (Server)	1			
13	Map Data Server	1			
14	Customised software with user management	1			
15	Manpower for Data centre Management	2 X 12 X 5			
16	Any other Item/Items required to complete the system (Specify)				
Total Cost of Data centre and software development and maintenance.					

Service Level Agreement (SLA): SLA Management Process:

S.No	Item	Uptime Required	Penalty
1	Data centre Uptime	99.80% uptime will be required and will be calculated on a monthly basis. Scheduled Downtimes will be allowed only during 22:00 Hrs to 03:00 Hrs of the consecutive days. Scheduled Downtime will be allowed only after seeking written permission and will usually take place on the night of Sundays. The allowed 00.20% Downtime will accrue as 14 Hours and 40 minutes in a month of 30 days. This allowable Downtime will not accrue on a single day and in a day the maximum time that will be continuously allowed for Data Centre Downtime will not be more than 2 Hours.	<ol style="list-style-type: none"> 1. For every hour of extra Downtime other than that allowed, Rs.5,000.00 will be deducted from the monthly guaranteed revenue. 2. If the Downtime on a single day exceeds 8 Hours, Rs.1,00,000.00 lakh will be deducted from the guaranteed revenue. 3. If the Downtime exceeds 1 day, Rs.2,00,000.00 will be deducted from the guaranteed revenue for each 1 day of Downtime. 4. If the Downtime exceeds 3 days, the monthly guaranteed revenue of the Bidder will be forfeited. 5. If the Downtime exceeds 1 week, the Performance Bank Guarantee will be forfeited and the contract will be terminated and the assets will become the property of MPSEDC.

Blade Chassis

Item	Description
Chassis Properties	Solution to house the required number of blade servers in smallest number of enclosures. Support for two socket and four socket blades in the same enclosure in a max of 10U blade chassis`
	Same enclosure should support Intel Xeon and AMD Opteron based blades.
	Should support simultaneous housing of Ethernet, FC, iSCSI, IB interconnect fabrics offering Hot Pluggable & Redundancy as a feature
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices. Software should save the Reports for further analysis.
	Should provision for a single console to monitor multiple enclosures
	Should support simultaneous remote access for different servers in the enclosure
	Enclosure should be populated in a way to include provision for 10% additional no. of servers being provided initially.
Interconnect	2 * 10 Gbps Ethernet switch with at least 8 uplink external ports
	Fibre channel Pass-through for FC connectivity
	Support for at least 3 redundant interconnect bays with support for Ethernet, FC, IB fabrics.
	The enclosure should be populated fully with power supplies of the highest capacity of the Chassis. Power supplies should have redundant configuration. Should offer choice of a single phase or 3 phase power subsystem for flexibility in connecting to Hardware Installation power enabled with technologies for lower power consumption
Power Supply	Chassis to be populated with adequate number of fans/blowers for total load on full capacity of the chassis.
Cooling	Each blade enclosure should have a cooling subsystem consisting of redundant hot pluggable fans or blowers enabled with technologies for improved power consumption and acoustics
Warranty	3 years comprehensive warranty, 24 x 7 supports with 4 hrs response time.
Rack for enclosure	42U standard rack with sufficient cooling fans and power distribution unit appropriate ratings for the blade enclosures should be provided
Management Software	Software Licenses for a fully populated Blade Enclosure should be given.

Item	Description
	<p>Provide proactive notification of actual or impending component failure alerts. Should support automatic event handling that allows notification of failures via e-mail.</p> <p>Should support scheduled execution of OS commands, batch files, scripts, and command line apps on remote nodes</p> <p>Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices. Software should save the Reports in some format for further analysis.</p> <p>Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.</p> <p>The server performance monitoring software should be able to detect, analyzes, and explain hardware bottlenecks. Also it should be able to log the data over time and allow it to replay the same in a short time frame for performance analysis.</p> <p>User friendly GUI/ console-based deployment to set up and install multiple OS and application configurations in individual blade server.</p>
Deployment Software	<p>Comprehensive web enabled system management tool that monitors the system health, environment, critical action etc, With its own data engine to store status reports, alerts and error notifications ,Complete Administration of the blade enclosure from a standard web-browser With event logging, detailed server status, alert forwarding, Remote graphical console, remote power control / shutdown, virtual floppy and CD for remote boot and configuration, virtual text and graphical control, automatic IP configuration via DHCP/DNS/WINS with the blade system should have the capability of managing all the blades in the Enclosures Simultaneously capable of monitoring both physical and virtualized environments with single sign-on capability for all devices in the enclosure</p>

Server (Blade)

Item	Description
Processor	2 * Intel Xeon Quad Core 5670 (@ 2.93 GHz) Processor module
	Server class chipset featuring Nehalem processors to be capable of supporting at least two processors.
Memory	24 GB DDR3 RDIMMs memory and scalable to 196 GB.
	Should support Advanced memory protection technologies like ECC.
Local Disk	2 * 300 GB Hot pluggable SAS Hard Disk
	Storage controller capable of providing RAID 0, 1 configurations
Ethernet Network	Dual port 10 Gbps Ethernet port with TOE per server
Fibre Channel HBA	Dual Port 4 Gbps FC HBA mezzanine card
Operating System	Windows 2008 R2
Supported Operating System	Should support Industry-led operating system platforms including Windows Server 2003,2008, Red Hat Enterprise Linux, Oracle Enterprise Linux, Sun Solaris, Virtualization software like VMware
Management	Should provide remote management capable of providing graphical interface, virtual media and multi-factor authentication.
	Server management software capable of providing role-based security, alerts of critical component failure (Hard drive, memory, CPU) and notify the same using email, pager, SMS.
	Should provide for a 3 year Pre-Failure hardware warranty with 4 hour response times.
	Should support scheduled execution of OS commands, batch files, scripts, and command line apps on remote nodes
	Should be able to perform comprehensive system data collection and enable users to quickly produce detailed inventory reports for managed devices. Should support the reports to be saved in HTML, CSV or XML format.
	Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.

Router

Features	Specifications Required
Hardware Architecture	Multiple services (Data, voice, video)
	Technologies like IP, MPLS etc
	Modular Chassis
Interface / Slots	Ethernet Ports 2 x 10/100/1000 Mbps
	Shall support variety of interfaces like <ul style="list-style-type: none"> ▪ V.35 Serial ▪ E1 Port ▪ ISDN BRI ▪ Fast Ethernet
	E1 Interfaces 2 ports
	BRI 1 Ports
	Console port 1 numbers
Memory	RAM 128 MB upgradeable to 256 MB or more
	Inbuilt / Flash Memory 32 MB, upgradeable to 64 MB or more
Security	GRE and IP Sec 3DES/AES VPN for configuration of VPN tunnels.
	Encryptions, IP Sec 3DES/AES
	NAT, PAT
	Access control Multilevel
	Support for Standard Access Lists to provide supervision and control.
	Controlled SNMP Access using ACL on router to ensure SNMP access only to identified NMS/EMS
	Controlled SNMP access through the use of SNMP with MD5 authentication.
	Multiple Privilege Levels for managing & monitoring
	Support for RMON 1 & 2 groups as and when required
	Support for Remote Authentication User Service (RADIUS) and AAA
	PPP CHAP support. PAP (optional)
Routing Protocols	Static Routes
	RIPv1, RIPv2
	OSPFv2 and v3.
	BGP4, IS-IS
	Route redistribution between any of the above protocols
Protocols	PPP, Multi-link PPP
	HDLC
	IPv4, IPv6
	MPLS
	VRRP / HSRP
IP Accounting	Using external Hardware/software infrastructure
	Packet & Byte Counts

Features	Specifications Required
	Start & End Time Stamp
	Network Time Protocol
	Input & Output interface ports.
	Type of service, TCP Flags & Protocol
	Source & Destination IP addresses
	Source & Destination TCP/UDP ports
Management	Accessibility using Telnet, SSH, Console access.
	Easier Software upgrades through network, using FTP, TFTP, etc.
	SNMPv1, snmpv2/v3
	Configuration management through CLI, GUI based software utility and using web interfaces. GUI tools shall be provided.
	Event and system history logging functions shall be available.
	Support for Syslog Server required
	Support pre-planned timed reboot to upgrade Hardware to a new software feature and plan the rebooting as an off-peak time.
	Shall support boot options booting from remote Network node.
QoS	ToS, CoS, Queuing, prioritizing
	IP Precedence, Policy based routing
Debug & Diagnostics	Display of input and output error status on all interfaces
	Display of Dynamic ARP table
	Display of physical layer line status signals like DCD, DSR, DTR, RTS, CTS on all interfaces
	Display of Routing table
	Trace-route, Ping, extended PING
Physical	Router should be mountable on 19" Rack
	All necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, wire managers, etc. should be provided
Performance	minimum 0.2mpps
Interface Requirements	1 x Channelised STM-1 2 x Gigabit Ethernet Interfaces

Network Switch

Features	Specifications Required
Interface /Slots	1 x 24 ports 10x100 FE
	2 x 1000Mbps ports base single mode or GE
VLAN features	IEEE 802.1Q VLAN encapsulation
	Dynamic Trunking Protocol (DTP) or equivalent
	Minimum 255 VLAN
Management	RS-232 Console port
	Accessibility using Telnet, SSH, Console access.
	SNMPv1, snmpv2/v3
Standards	IEEE 802.1x support
	IEEE 802.3x full duplex on 10BASE-T and 100BASE-TX ports
	IEEE 802.1d Spanning-Tree Protocol
Power Supply	Internal power supply 230 Volt 50Hz input
Miscellaneous	All necessary power cords, adapters, data cables, connectors, CDs, manuals, brackets accessories, wire managers, etc. should be provided

Tape Library

- Offered Tape Library shall support Native data capacity of 6TB (uncompressed) expandable to 12 TB (compressed).
- Tape Library shall provide web based remote monitoring capability.
- The Tape Library unit shall be configured with FC LTO Gen4 Tape Drives.
- Tape Drive Architecture in the Library shall conform to Ultra3 SCSI standards.
- Offered LTO4 drive in the Library shall conform to the Continuous and Data rate matching technique for higher reliability.
- Offered LTO4 drive in the library shall offer optional WORM support and embedded AES 256 bit Encryption support.
- Offered Library shall be provided with a hardware device like USB key, separate appliance etc. to keep all the encrypted keys in a redundant fashion.
- Offered LTO4 drive shall have native speed of 120MB/sec and a compressed speed of 240 MB/sec for 2:1 compression.
- Tape Library shall provide Fiber connectivity to SAN Environment.
- For optimal Performance. Tape Library shall provide 4Gbps Native FC interface connectivity to SAN switches.
- Tape Library shall be offered with minimum of 24 slots and barcode reader.
- Tape library shall support removable magazine and mail slot.

Storage System (SAN + NAS)

- The storage solution must be multiprotocol (CIFS, NFS, iSCSI, FCP,)
- The storage array should support industry-leading Operating System platforms & clustering including: Windows Server 2003 (Enterprise Edition), Windows Server 2008, Sun Solaris, HP-UX, IBM-AIX, Linux and Novell NetWare.

- Offered Array should have usable 5 TB capacities with protection against dual disk failure with no performance penalty on 300 GB FC / SAS drives and should be scalable to at-least minimum of 120 numbers of Drives. It should support FC / SAS and SATA Disk Drives
- The storage solution should support UNIX/firmware based operating system, dual, redundant, hot-pluggable; active-active array controllers.
- Storage array shall be based on latest PCI-e technology to ensure that there is no IO bottleneck.
- Controllers shall be true active-active.
- Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.
- The storage array should have a minimum of 4 GB cache
- Storage box shall support atleast 20000 uncached IOPS.
- Storage box shall support more than 1200MB/sec sequential bandwidth.
- Offered Storage shall have minimum of 4 host ports and 2 device ports for Servers and disk connectivity.
- Offered storage shall be end to end 4Gbps.
- The backend bandwidth should be atleast 16 Gbps
- The storage array should support RAID 10 / 5 or 6.
- The storage array should support 4/6Gbps dual-ported 300/450GB hot-pluggable Enterprise FC/ SAS and S-ATA drives.
- Offered storage shall have Switching support for disk drives for better performance and lower arbitration.
- The storage array should support virtualization at the storage controller level.
- In case of power failure, storage subsystem shall have the Capability to keep the uncommitted information inside cache for at-least 72 hours or in a de-staged fashion.
- The Storage Array should support incremental resynchronization between Primary and Snapshot / clone volume.
- In case of Disk failure inside the storage subsystem, Disk re-building time shall not have any relation with the number of disk drives in the disk group for better recovery time and to avoid performance issues.
- Offered storage shall support non-disruptive online firmware upgrade for both Controllers and disk drives.
- Must support block-level incremental replication of data over TCP/IP using FCIP for DR
- Must be able to clone data rapidly while minimizing physical storage space consumption without using additional space upon creation of the clone; only changes to the clone's data should take up space
- Must be able to grow/shrink data volumes without application downtime
- Must support thin provisioning of data as part of the normal storage provisioning process; thin provisioning should not place any restrictions on storage volumes
- The system hardware must be upgradable for higher performance and capacity with no data movement or migration required.
- The system must simultaneously support NAS (CIFS and NFS) and SAN (FC and iSCSI) connectivity.
- The storage system's operating system must be certified by a qualified third party.

TECHNICAL SPECIFICATIONS UPS 5 KVA ON-LINE, 1 HOUR BACKUP

	Description/ Parameter	Specifications Required	Specification Offered
01	Input Voltage Range	230v + 15 –30 % Single Phase	
02	Input Frequency Range	47 Hz To 53 Hz	
03	Output Voltage Regulation	230 V ± 1%	
04	Output Frequency	50 Hz ±0.1% Free Running 50 Hz ± 6% synchronized to mains	
05	Output Power Rating	5000 VA/4000 Watts	
06	Output Waveform	Sine Wave	
07	Total Harmonic Distortion For Linear And Non-Linear Loads	Less than 5%	
08	Overload Capacity	110 % For 10 Minutes 150 % For 1 Minute	
09	Transient Response For 100% Step Load	±10% With Recovery Within 3 Cycles.	
10	Efficiency Overall Inverter	Better than 85% Better than 90%	
11	Crest Factor	3:1	
12	Operating Temperature	0-50 degrees Centigrade	
13	Relative humidity	0 % to 95%, non condensing	
14	Battery Charger	Built In Float Cum Boost Charger With CC & CV Mode. Should be able to charge a fully discharged battery in 10 hours	
15	Protections	-Input And Output Under Voltage And Over Voltage Protection -Output Short-Circuit Protection- Output Overload Protection- Full Isolation Between Input & Output.	
16	Indications	Mains ON, Charger ON, Battery Low, Inverter ON, System Trip/ Inverter Trip	
17	Alarms	-Low Battery -Mains Failure	
18	Metering	Input Voltage, Output Voltage and Current, Battery Voltage And Current.	
19	Power management software	Software suite CD ROM (Bundled with UPS)	
20	Nominal DC Voltage	(To Be Specified)	
21	Backup Time	1 Hour on Full Resistive Load Of 4000 Watts	
22	No. Of Batteries	(To Be Specified)	
23	Type Of Batteries	Sealed, maintenance free	
24	Capacity Of Batteries	Minimum 8190 VAH	
25	Make Of Batteries	(To Be Specified Only reputed makes will be considered)	
26	Manual Bypass	To Be Provided	
27	Static Bypass	To Be Provided with changeover within 4 ms	
28	Audible noise	Not more than 55 dbA	
29	Accessories	Power cables, media, manageability software, documentation etc	
30	Supported os for manageability software	Windows 2008 server, win 2000 pro, Win Xp, Windows Vista	
31	Warranty	One Year on site including Batteries.	
32	Redundancy	Option for operating two UPS systems in parallel redundant mode with load sharing to be made available if required.	