West Bengal State Council of Science & Technology
Department of Higher Education,
Science and Technology and Biotechnology
Government of West Bengal
Bikash Bhavan (4th Floor)
Salt Lake, Kolkata-700091

Notice Inviting e-Tenders (Second Call)

NIT No. 812 **/WBSCST/F/0271/09** **Dated:** 28.05.2018

Tenders are invited through electronic tendering (e-tendering) from reputed, established and reliable organizations/ System Integrators (SI) in connection with the development of Web based Geo-Portal and Data Clearinghouse under **West Bengal State Spatial Data Infrastructure (WBSSDI) project.**

Tenders on two packet system are to be submitted online through https://wbtenders.gov.in.

Last date of submission of tender: 05.07.2018 by 12:00 hrs.

All relevant details of the advertisement, eligibility criteria, scope of work and tentative time schedule for various activities are available in the RFP (Request For Proposal) document which may be had from the above mentioned website as well as from official website of Govt. of West Bengal(www.wb.gov.in) and also from the offices of WBSCST and DHESTBT, Govt. of West Bengal at the above address (Phone No. 033-2569 3705/12/04, 033-2359 6616,) as well as at Bikash Bhavan (4th Floor), Salt Lake, Kolkata – 700 091.

Joint Secretary,
Department of Higher Education,
Science and Technology and Biotechnology
Govt. of West Bengal
& Tender Inviting Authority

Setting up of a
Geo-portal and a Data Clearinghouse for the West Bengal SSDI Project:

Tentative Time Schedule

Sl. No.	Activity	Scheduled Date
1	Publication of RFP for e-Tendering	28.05.2018
2	Pre-Bid Meeting	04.06.2018 at 12:00 PM
3	Last Date for Submission of e-Tender	05.07.2018 by 12.00 hrs.
4	Opening of Technical Bid	09.07.2018 at 4:00 PM
5	Opening of Financial Bid	To be notified later

REQUEST FOR PROPOSAL

For
Setting up of a
Geo-portal and a Data Clearinghouse for the West Bengal State Spatial Data Infrastructure (WBSSDI)

West Bengal State Council of Science & Technology (WBSCST)
Department of Higher Education,
Science and Technology and Biotechnology
Government of West Bengal

Bikash Bhavan (4th Floor), Salt Lake, Kolkata-700091
Ph: 033 2359 6616, 2569 3705/12/04: Fax 033 2334 2969

Contents

SECTION 1	:	LETTER OF INVITATION	5
SECTION 2	:	INFORMATION TO BIDDERS	8
SECTION 3	:	DATA SHEET	16
SECTION 4	:	TERMS OF REFERENCE	27
SECTION 5	:	TECHNICAL SPECIFICATIONS	44
SECTION 6	:	TECHNICAL PROPOSAL - STANDARD FORMS	58
SECTION 7	:	FINANCIAL PROPOSAL - STANDARD FORMS	69
SECTION 8	:	STANDARD FORMS OF CONTRACT INCLUDING TERMS OF PAYMENT	72

SECTION 1

LETTER OF INVITATION

SECTION 1

Letter of Invitation

No. 813 /WBSCST/F/0271/09 Date: 28.05.2018

To: M/s.
.....
.....
.....
Dear Sir / Madam,

Sub: Letter of Invitation for submission of proposal for "Setting up of a Geo-portal and a Data Clearinghouse for the West Bengal State Council of Science & Technology (WBSCST)".

1. Under NRDMS Programme of Department of Science and Technology, Government of India West Bengal State Council of Science & Technology (WBSCST) – an autonomous body under Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal– intends to develop a Geo-portal and Data Clearinghouse to support the task of Local Level Planning. WBSCST releases this request to solicit proposals from qualified and experienced firms/ organizations for setting up the Geo-portal and the Data Clearinghouse.

2. The West Bengal State Council of Science & Technology (WBSCST) now invites sealed proposals (technical and financial) for Setting up of a Geo-portal and a Data Clearinghouse for the West Bengal State Council of Science & Technology (WBSCST).

   In support of the above requirement, the bidder is primarily expected to procure, customize, install, demonstrate and operationalize relevant hardware, software, and data for the Geo-portal and the Data Clearinghouse mechanism, access to and maintenance of the underlying master database by uploading data from remote clients available in spatial data generation/ survey agencies, provision of the key services as per the architecture and specifications mentioned in Section 2 of this RFP.

   Core staff of WBSCST and other agencies should be trained on the functioning and operation of the equipment and provision of services. After the completion of the project, it should be possible for the core staff to maintain the system on their own with minimal support from the bidder as per the terms and conditions of the warranty and maintenance agreement.

   As is required under a SDI, the Geo-portal will be regularly upgraded to help data/ service providers publish their metadata/ data / services for access by the customers over the web. Some key web applications also need to be demonstrated for access. On the completion of the project, the set up will be run and maintained by WBSCST/State Government. More details on the services are provided in the attached Terms of Reference.

3. A firm will be selected under Cost Based Selection subject to fulfillment of all the requirements and procedures described in this RFP.

4. The RFP includes the following documents:

Section 1 - Letter of Invitation
Section 2 - Information to Bidders
Section 3 - Data Sheet
Section 4 - Terms of Reference
Section 5 - Technical Specifications
Section 6 - Technical Proposal - Standard Forms
Section 7 - Financial Proposal - Standard Forms
Section 8 - Standard Forms of Contract including Terms of Payment.

5. Please inform us, upon receipt:

(a) That you have received the letter of invitation; and
(b) Whether you will submit a proposal alone or in association.

For more details on the services required refer to the attached Terms of Reference.

Kindly respond to the RFP as per directions and formats provided in the RFP.

Yours faithfully,

Joint Secretary,
Department of Higher Education,
Science and Technology and Biotechnology
Govt. of West Bengal
& Tender Inviting Authority

SECTION 2

INFORMATION TO BIDDERS

SECTION 2

Information to Bidders

1. Introduction
2. Clarification and Amendment of RFP Documents
3. Preparation of Proposal
4. Submission, Receipt, and Opening of Proposals
5. Proposal Evaluation
6. Technical clarification
7. Award of Contract
8. Confidentiality

1. Introduction	1.1 WBSCST will select an Organization/Systems Integrator, in accordance with the method of selection specified in the Data Sheet and detailed in the Guidelines indicated in the Data Sheet.
Eligibility Criteria	1.1.1 Firm should have established proven experience and expertise in Geographic Information System (GIS), International Standardization Organization (ISO)/ Open Geospatial Consortium (OGC) standards based data/ metadata/ service creation, development of interoperable systems, Spatial Data Infrastructure (SDI)/ Enterprise GIS, and development of Service Oriented Architecture (SOA) based Geo Portal. 1.1.2 The firm should have experience of using OGC Certified Products and services in their previous projects. 1.1.3 The firm should have minimum annual turnover of Rs. 8 crores during last three years and submitted audited financial statements over the last three years. 1.1.4 The firm should furnish Govt. Registration certificates/documents, organization bye-laws etc. 1.1.5 The firm should also have an office in Kolkata/ ready to open an office in Kolkata if contract is awarded. 1.1.6 For all the above, furnishing of relevant documentary evidences is necessary.
	1.2 The bidders are invited to submit a Technical Proposal and a Financial Proposal, as specified in the Data Sheet for system integrating services required for the assignment named in the Data Sheet. The proposal will be the basis for contract negotiations and ultimately for a signed contract with the selected firm.
	1.3 Bidders should familiarize themselves with local conditions and take these into account in preparing their Proposals. To obtain first-hand information on the assignment and local conditions, bidders may visit the WBSCST before submitting a proposal. Attending the pre-proposal conference is mandatory for all clarifications. Bidders must attend the pre-proposal conference as specified in the Data Sheet. This is aimed to meet any query from the bidders: A copy of such query should be sent in advance. Any query after pre-bid meeting will not be entertained.
	1.4 WBSCST will timely provide at no cost to the Bidders the inputs and facilities specified in the Data Sheet, assist the firm in carrying out the services, and make available relevant project data and reports.

	1.5 The Bidders shall bear all costs associated with the preparation and submission of their proposals and contract negotiation. WBSCST is not bound to accept any proposal, and reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the Bidders.
Conflict of Interest	1.6 WBSCST requires that Bidders to provide professional, objective, and impartial advice and at all times hold WBSCST's interests paramount, strictly avoid conflicts with other assignments or their own corporate interests and act without any consideration for future works as stated in 1.6.1 Without limitation on the generality of the foregoing, Bidders, and any of their affiliates, shall be considered to have a conflict of interest and shall not be recruited, under any of the circumstances set forth below:
	1.6.1 (a) A firm that has been engaged by WBSCST to provide goods, works or services other than consulting services for a project, and any of its affiliates, shall be disqualified from providing consulting services related to those goods, works or services. Conversely, a firm hired to provide consulting services for the preparation or implementation of a project, and any of its affiliates, shall be disqualified from subsequently providing goods or works or services other than consulting services resulting from or directly related to the firm's consulting services for such preparation or implementation. For the purpose of this paragraph, services other than consulting services are defined as those leading to a measurable physical output, for example surveys, aerial photography, and satellite imagery. (b) A Bidder (including its Personnel and Sub-Bidders) or any of its affiliates shall not be hired for any assignment that, by its nature, may be in conflict with another assignment of the Bidder for the same or for another Client. (c)The Bidder shall be aware of its obligations under the Contract to: "Setting up of a Geo-portal and a Data Clearinghouse for West Bengal State Spatial Data Infrastructure (WBSSDI)"
	1.6.2. Bidders have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the WBSCST, or that may reasonably be perceived as having this effect. Failure to disclose said situations may lead to the disqualification of the Bidder or the termination of its 'Contract'.

Fraud and Corruption	1.7. WBSCST requires that all Bidders participating in consulting assignments to adhere to the highest ethical standards, both, during the selection process and throughout the execution of the contract. In pursuance of this policy, WBSCST: (a) defines, for the purpose of this paragraph, the terms set forth below as follows: (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a WBSCST official in the selection process or in contract execution; (ii)"fraudulent practice" means a misrepresentation or omission of facts in order to influence a selection process or the execution of a contract; (iii)"collusive practices" means a scheme or arrangement between two or more Bidders with or without the knowledge of the WBSCST, designed to establish prices at artificial, noncompetitive levels; (iv) "Coercive practices" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract. (b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question;
	(c) will terminate the contract if it determines at any time that representatives of the Bidder were engaged in corrupt, fraudulent, collusive or coercive practices during the selection process or the execution of the contract. (d) will sanction a Bidder, including declaring the Bidder ineligible, either indefinitely or for a stated period of time, to be awarded by WBSCST if at any time determines that the Bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, WBSCST contract; and (e) will have the right to require that, in contracts of WBSCST, a provision be included requiring Bidders to permit the WBSCST to inspect their accounts and records and other documents relating to the submission of proposals and contract performance, and have them audited by auditors appointed by the WBSCST.
	1.8. No Bidder, its Sub-Bidder(s), or associate(s) shall be under a declaration of ineligibility for corrupt and fraudulent practices issued by the WBSCST in accordance with the above Para 1.7. Furthermore, the Bidders shall be aware of the provisions on fraud and corruption stated in the specific clauses in the General Conditions of Contract.
Origin of Goods and Consulting Services	1.9. Goods supplied and Consulting Services provided under the Contract may originate from any country except if: (i)as a matter of law or official regulation, the beneficiary's country prohibits commercial relations with that country; or (ii) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the beneficiary's Country prohibits any imports of goods from that country or any payments to persons or entities in that country.
Only one Proposal	1.10. Bidders may submit only one proposal. If a Bidder submits or participates in more than one proposal, such proposals shall be disqualified. However, this does not limit the participation of the same Sub-Bidder, including individual experts, to more than one proposal.

Proposal Validity	1.11. The Data Sheet indicates how long Bidders' Proposals must remain valid after the submission date. During this period, Bidders shall maintain the availability of their service. WBSCST will make its best effort to complete negotiations within this period. Should the need arise; however, WBSCST may request Bidders to extend the validity period of their proposals. Bidders who agree to such extension shall confirm that they maintain the availability of their service till the final evaluation for contract is completed. Bidders who do not agree have the right to refuse to extend the validity of their Proposals.

2. Clarification and Amendment of RFP Documents	2.1. Bidders may request a clarification of any of the RFP documents up to the number of days indicated in the Data Sheet before the proposal submission date. Any request for clarification must be sent in writing, or by standard electronic means to the WBSCST's address indicated in the Data Sheet. The WBSCST will respond by standard electronic means or will send written copies of the response (including an explanation of the query but without identifying the source of inquiry) to all Bidders. Should the WBSCST deem it necessary to amend the RFP as a result of a clarification, it shall do so following the procedure under para. 2.2. 2.2. At any time before the submission of Proposals, the WBSCST may amend the RFP by issuing an addendum in writing or by standard electronic means. The addendum shall be sent to all bidders and will be binding on them. Bidders shall acknowledge receipt of all amendments. To give Bidders reasonable time in which to take an amendment into account in their Proposals WBSCST may, if the amendment is substantial, extend the deadline for the submission of Proposals.
3. Preparation of Proposal	3.1. The Proposal shall be written in the language specified in the Data Sheet.
	3.2. In preparing their Technical Proposal, Bidders are expected to examine the documents constituting this RFP in detail. Material deficiencies in providing the information requested may result in rejection of a proposal.
	3.3. While preparing the Technical Proposal, Bidders must give particular attention to the following: Consortium is allowed. Consortium members cannot be another bidder. Consortium with blacklisted companies is not allowed. If Bidder considers that it may enhance its expertise for the assignment by associating with other parties in a joint venture or sub-consultancy, it may associate with other parties as indicated in the Form 6B. The short listed Bidder shall act as association leader. In case of a joint venture, all partners shall be jointly and severally liable and shall indicate who will act as the partner in charge of the joint venture. Other relevant forms are in Section 6.

Technical Proposal Format and Content	3.4. Depending on the nature of the assignment, Bidders are required to submit a Full Technical Proposal (FTP). The Data Sheet indicates the format of the Technical Proposal to be submitted. Submission of the wrong type of Technical Proposal will result in the Proposal being deemed nonresponsive. The Technical Proposal shall provide the information indicated in the following para from (a) to (g) using the attached Standard Forms (Section 6). (a) For the FTP only: a brief description of the Bidders' organization and an outline of recent experience of the Bidders and, in the case of joint venture, for each partner, on assignments of a similar nature is required in Form 6B of section 6. For each assignment, the outline should indicate the names of Sub-Bidders/ Professional staff who participated, duration of the assignment, contract amount, and Bidder's involvement. Information should be provided

	only for those assignments for which the Bidder was legally contracted by the client as a corporation or as one of the major firms within a joint venture. Assignments completed by individual Professional staff working privately or through other consulting firms cannot be claimed as the experience of the Bidder, or that of the Bidder's associates, but can be claimed by the Professional staff themselves in their CVs. Bidders should be prepared to substantiate the claimed experience if so requested by the WBSCST. (b) (i) For the FTP only: comments and suggestions on the Terms of Reference including workable suggestions that could improve the quality/ effectiveness of the assignment. (ii) A description of the methodology and work plan for performing the assignment covering the following subjects: technical approach and methodology, work plan, and time schedule of deliverables. Guidance on the content of this section of the Technical Proposals is provided under Form 6D of Section 6. (iii) The description of the approach, methodology and work plan should normally consist of 10 pages, including charts, diagrams, and comments and suggestions, if any, on Terms of Reference and counterpart staff and facilities (refer Forms 6C and 6D). (c) The list of the proposed Professional staff team by area of expertise, the position that would be assigned to each staff team member, and their tasks (Form 6E of Section 6). (d) The staff-months input should be indicated separately for home office and field activities, and for foreign and local Professional staff. (e) CVs of the Professional staff signed by the staff themselves or by the authorized representative of the Professional Staff (Form 6F of Section 6). (f) For the FTP only: a detailed description of the proposed methodology and staffing for training, if the Data Sheet specifies training as a specific component of the assignment. 3.5. The Technical Proposal shall not include any financial information. A Technical Proposal containing financial information may be declared non responsive. However an unpriced BOQ is to be submitted alongwith the Technical Proposal (Form 6H, Section 6).
Financial Proposal	3.6 The Financial Proposal shall be prepared using the BOQ format available in the wbtenders portal. A copy of the same may be found in section 7. It shall list all costs associated with the assignment, including (a) remuneration for staff, in the field and at the Bidders' home office, and (b) Reimbursable expenses indicated in the Data Sheet. If appropriate, these costs should be broken down by activity and, local expenditures. (c) All activities and items described in the Technical Proposal must be priced separately; activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items.

Local Taxes	3.7. Firm should quote in Financial bid including applicable tax against each line item.
	3.8. Bidders may express the price of their services in a single national currency if so indicated in the Data Sheet.
Earnest Money Deposit (EMD)	3.9 Along with the financial proposal, the bidders must submit EMD online as specified in the Data Sheet.

4. Submission, Receipt, and Opening of Proposals	4. Tender documents (Technical Proposal and Financial Proposal) to be uploaded in the e-tender portal and the opening of the proposal will be done on-line.
5. Proposal Evaluation	5.1. From the time the Proposals are opened to the time the Contract is awarded, the Bidders should not contact WBSCST on any matter related to its Technical and/or Financial Proposal. Any effort by Bidders to influence WBSCST in the examination, evaluation, ranking of Proposals, and recommendation for award of Contract may result in the rejection of the Bidders' Proposal. Evaluators of Technical Proposals shall have no access to the Financial Proposals until the technical evaluation is concluded.
Evaluation of Technical Proposals	5.2. The evaluation committee shall evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference, applying the evaluation criteria as specified in the Data Sheet.
Public Opening and Evaluation of Financial Proposals	5.3. After the technical evaluation is completed, the successful Bidders will be informed accordingly and shall also notify the unsuccessful Bidders. The Financial Proposals of the unsuccessful Bidders will not be opened. WBSCST shall simultaneously notify in writing to the successful Bidders the date and time for opening the Financial Proposals. 5.4. Financial Proposals shall be opened electronically through e-Tender portal. 5.5. The Evaluation Committee will correct any computational errors. When correcting computational errors, in case of discrepancy between a partial amount and the total amount, or between word and figures the formers will prevail. In addition to the above corrections, as indicated under para. 3.6, activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items. Prices shall be converted to a single currency using the selling rates of exchange, source and date indicated in the Data Sheet.

6. Technical clarification	6. Discussion of the Technical Proposal -- the proposed technical approach and methodology, work plan, and organization and staffing, and any suggestions made by the Bidder on the technical proposal.
7. Award of Contract	7.1. WBSCST shall award the Contract to the selected Bidder, and promptly notify all Bidders who have submitted proposals. WBSCST may exclude some minor items if found not required at the time of issue of Work Order.
	7.2. The Bidder is expected to commence the assignment on the date and at the location specified in the Data Sheet. However, the Bidder can only commence work once the contract has been signed.
	7.3. The successful bidder will have to furnish along with the agreement a security deposit of Rs. 10 lakhs in the form of a performance security Bank Guarantee on any Nationalized Bank (in favor Member Secretary, WBSCST) valid for five years six months from the date of issue of Letter of Intent.
8. Confidentiality	Information relating to evaluation of Proposals and recommendations concerning awards shall not be disclosed to the Bidders who submitted the Proposals or to other persons not officially concerned with the process, until the winning firm has been notified.

SECTION 3

DATA SHEET

SECTION 3

Data Sheet

Clause Reference	
1.1	The name of the Client is: West Bengal State Council of Science & Technology (WBSCST), Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal, Kolkata – 700091 The method of selection is: Cost Based Selection subject to fulfillment of all the requirements
1.2	Technical and Financial Proposals are requested: Yes The name, objectives, and description of the assignment are: Setting up of a Geo-portal and a Data Clearinghouse for the West Bengal State Spatial Data Infrastructure (WBSSDI) Ref: Letter of Invitation for details
1.3	A pre-proposal conference will be held on tentatively 04.06.2018 at 12:00 hrs Venue: Conference Room of DHESTBT, Government of West Bengal, Bikash Bhavan, (4th Floor), Salt Lake, Kolkata-700091 The name, address, and telephone numbers of the Client's official(s) are: Joint Secretary, Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal, Bikash Bhavan (4th Floor), Salt Lake, Kolkata – 700091 Ph: 033-2569 3705/12/04, 033-2359 6616, Fax:033-2334 2969
1.4	The Client will provide the following inputs: List of indicative maps/ data (likely to change partially in consultation with the users during the 'Requirement Analysis' phase mentioned in the TOR to form a part of the development of portal and data clearinghouse): District boundary, Municipal boundary, Block / Panchayat Samity Boundary, Panchayat boundary, Revenue Mouza boundary, Gram Sansad, Gram Panchayat, Zilla Parisad Constituency, Assembly constituency, Parliamentary constituency, Drainage-Watershed-Surface Waterbodies, Geology, Geomorphologhy, Soil, Slope, Landuse/ Landcover, Transport Network, Water Resource Management, Natural Hazards Zonation, Mineral Resources, Forest (type, extent), Elevation, Infrastructure facilities (health, education, drinking water etc.) The Council would provide the above spatial data along with relevant attributes as well as Maps/ Data/ Metadata received from other departments for developing geo-portal.
1.5	The clauses on fraud and corruption in the Contract are: Provided at Section 2: Clause No. 1.7.
2.1	Clarifications may be requested preferably before 01.06.2018 by 2:00 pm in writing/ e-mail. The address for requesting clarifications is: Principal Investigator, WBSSDI Project, West Bengal State Council of Science & Technology (WBSCST), Department of Higher Education, Science and Technology and Biotechnology, Bikash Bhavan (4th Floor), Kolkata – 700 091 Ph: 033-2359 6616/25693705/12/04: Fax 033-2334 2969; E-mail:wbgeoportal@gmail.com
3.1	Proposals should be submitted in the "English" language.
3.2	(i) Shortlisted firm/entity may associate with other short listed firm: No (ii) The estimated number of working months required for the assignment is: 21 Working Weeks X 5 days per week

3.3	(i) Training is a specific component of this assignment: Yes Training of staff from WBSCST and stakeholder organizations is essential for upgradation, operation and maintenance of the system after the project period is over. Deployment of vendor personnel for maintenance is essential to support the trained staff subject to the related provisions of the TOR. (ii) Additional information in the Technical Proposal includes: Past experience in executing similar assignments like development of web portal, Geo-portal, SDI providing website address, certification of recognition issued by competent authorities, etc, may be covered.
3.4	Taxes: The Bidders shall include statutory taxes such as GST to be paid.
3.5	Bidders to state local cost in the national currency: Indian Rupees
3.6	Proposals must remain valid for 12 months after the submission date.
3.9	An **Earnest Money Deposit (EMD)** of Rs.10 lakhs (Rupees ten Lakhs only) will have to be submitted online along with the Proposal. Proposals not accompanied by EMD shall be summarily rejected as non-responsive. No interest shall be payable by the WBCST for the sum deposited as earnest money deposit. Bank guarantee /cheques will not be accepted in lieu of the EMD. The EMD of the unsuccessful TSPs will be returned online within one month of signing of the contract with successful TSP, whichever is later. The successful bidder will have to furnish along with the agreement a security deposit of Rs.10 lakhs in the form of a Bank Guarantee on any Nationalized Bank (in favour Member Secretary, WBSCST) valid for 66 months from the date of letter of intent EMD of Successful bidder will be returned after submission of security deposit.
4.1	Bidders must submit soft copy of each technical proposal and Financial Proposal in e-Tender portal
4.2	The tender must be submitted through e-Tender procedure.
4.3	Proposals must be submitted no later than the following date and time: tentatively on 05.07.2018 by 12:00 hrs
5.	The address for correspondence is: Joint Secretary, Department of Higher Education, Science and Technology and Biotechnology, Govt. of West Bengal, Bikash Bhavan (4th Floor), Salt Lake, Kolkata – 700 091 Ph: 033-2359 6616/2569 3705/12/04: Fax 033-2334 2969
6	The assignment is expected to commence tentatively from March, 2018 Bikash Bhavan (4th floor), Salt Lake, Kolkata-700091.
7	Security Deposit: The successful bidder will have to furnish along with the agreement a security deposit of Rs. 10 lakhs in the form of a Bank Guarantee on any of the Nationalised Bank(s) (in favor of the concerned accounts office) valid for 66 months from the date of issue of letter of intent. The requisite proforma for the Bank Guarantee is given in Appendix-F of Section 8.

8. Criteria for Evaluation

I. The overall objective of this evaluation process is to select the capable and qualified firm in the business domain of developing the geo-portal(s) and data clearinghouse(s), related hardware and other infrastructure, providing associated capacity building, training and handholding support as well as associated managed services and who will provide a comprehensive solution towards Supply, Installation, Integration, Commissioning, Development, Deployment, Operation & Management of the Application and hardware provisioning in the State of West Bengal.

II. First the Pre-Qualification Proposal will be evaluated and only those bidders who qualify the requirements will be eligible for next set of evaluations. Technical Proposal will be opened for only the pre-qualified bidders.

III. In Technical Evaluation, the technical score of all the bidders would be calculated as per the criteria mentioned below. All the bidders who achieve at least 70 marks in the technical evaluation would be eligible for the next stage, i.e. Financial Bid opening.

IV. Proposals of Companies would be evaluated as per Technical Evaluation Criteria. Agencies / firms should clearly indicate, giving explicit supporting documentary evidence, with respect to the above, in absence of which their proposals. The TEC may seek further clarifications, if necessary.

8.1 Technical Evaluation Criteria

Evaluation criteria: Vendors shall specify in detail their qualification and experiences in similar projects in India or abroad involving development of geo-portal(s) and data clearinghouse(s). They will be evaluated based on successful experience in delivering such products as per specifications in time. The selection of the successful vendor will be made by an evaluation committee based on the criteria given below:

- ✓ All offers shall contain specified documents.
- ✓ The following types of offers are subjected to rejections:
  a. Solutions not conforming to standards (OGC/ ISO TC 211) specified
  b. Part offers other than what is specified
  c. offers which are not fully responsive will be rejected.
- ✓ Technical proposal of only those bidders will be opened and evaluated who meet all the pre-qualification criteria.
- ✓ The evaluation committee will evaluate the Technical Proposals on the basis of the technical evaluation criterion as provided below. The Technical Evaluation Committee reserves the right to seek clarification, if any required.

S. No	Criteria	Max Criteria / Sub Criteria Marks
1	Technical capability of the vendor	30
2	Work plan, methodology & Training	35
3	Job profile/ experience of the key professional staff	15
4	Maintenance	10
5	Certification	10
	Total Points	100

8.2 Detailed Technical Evaluation Criteria:

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
1	Technical capability of the vendor			**30**
a.	i. Experience in designing GIS database ii.Experience in developing OGC GML application schema and converting existing digital data in .shp format and other proprietary formats to GML conforming to the application schema iii. Experience in providing ISO/ OGC certified web-based services like map service, feature service; catalogue service; coverage service; registry service from a geo-relational database	At least THREE client references for implementation of an integrated turnkey project to be mentioned, each project should have a minimum project cost of Rs. 1 Cr.	Less Than THREE projects: 0 For 3 Projects: 7 For 4 Projects: 8 For 5 Projects:9 For 6 and above Projects:10	**10**
b.	Experience in Hardware & Software supply and integration as turnkey project	At least THREE client references for implementation of an integrated turnkey project to be mentioned. each project should have a minimum project cost of Rs. 1 Cr.	Less Than THREE projects: 0 For 3 Projects: 7 For 4 Projects: 8 For 5 Projects:9 For 6 and above Projects:10	**10**
c.	Experience in developing GIS based web and mobile applications	At least TWO client references for implementation of an integrated turnkey project to be mentioned. each project should have a minimum project cost of Rs. 1 Cr.	Less Than Two projects: 0 For 2 Project: 7 For 3 Projects: 9 For 4 Projects and above: 10	**10**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
2	**Work plan, methodology & Training**			**35**
a.	**Proposed solution**	Comprehensive inclusion of the work items of the TOR in the proposed work plan of the vendor with proper sequencing of activities	Evaluation Committee will evaluate whether all the points/ requirements mentioned in the RFP are addressed well and award points accordingly, the important parameters being:- – Solution architecture conceptualized for this project. – 3 points – Security architecture- 3 points – Detailed plan - 2 points – Application deployment and testing Strategy -2 points	**10**
b.	**Proposed Approach and methodology**	Evaluation Committee will evaluate whether the implementation methodology is in line with the requirement. The important parameters being:- - Plan for meeting the SLA norms. - Redundancy and failover options. - Spare equipment availability plans	In this section, the responding firm should: – Explain the understanding of the project requirements, highlight the expected support from the State, approach to the services, SLA management methodology, methodology for carrying out the activities for expected output - 2 points – Highlight the associated risks / problems and plans for mitigation and explain the technical approach it would adopt to address them – 2 points – Explain the methodologies the responding firm proposes to adopt and highlight the compatibility of those methodologies with the proposed approach - 2 points – Planning and Building Infrastructure (assessment, design, integration / migration) – 2 points - Quality or quantity of assumption(s), if any, made	**10**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
			in attending to the items ofwork / providing the deliverables & Quality Control Procedures suggested by responding firm- 2 points	
c	**Project Approach**	The overall project management approach adopted by the responding firm to implement the project to meet the timelines.	i. Description of how each item in the proposed work plan addressing the TOR /deliverables- 3 points ii. Details of the standards including those from ISO TC 211/ OGC. – 2 points iii. Approach to the project management, checkpoints, and periodic status reporting to WBSCST – 3 points iv. Timelines: 2 points	**10**
d	**Training**	Proposed Training and Change Management plan description to be looked into	The Evaluation will be based on: – Proposed Training Schedule – 1 point – Plan to develop Training Manuals – 1 point – Areas/domains covered – 1 point – Number & Quality of personnel to be deployed for training at the site of Implementation of the Project.- 2 points	**5**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
3	Job profile/ experience of the key professional staff			**15**
a	**Quality of CV for the full time Project Resources**	Quality of the application support personnel to be looked at CVs of 5 named resources who would be working full time on project **Note: Entire duration of the contract go-live as well as support**	a) Project Manager for managing the entire Project b) Team Lead for Data Base Management and Administration c) Team Lead for Application Development & Support d) Team Lead for Operations Management, Hardware Systems, Network & Maintenance e) Team Lead for Capacity Building & Change Management and all other activities	
			For each of the above resources, the point system will be as follows:	
			– Project Manager must have >=10 years of work experience and points for the same will be allocated as follows: o BE / B. Tech / MCA and MBA = 1 o PMP / Prince2 Certification = 1 o Relevant GIS certification= 1 o Managed >= 1 projects each having value of >= INR 2 Cr. = 1	**4**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
			– For Team Lead for Data Base Management and Administration points will be allocated as follows: o BE / B. Tech / MCA = 1 o Experience in Open Standard Enterprise Class Database Software in GIS platform-- ✓ >=5 years of work experience in related field = 2 ✓ 4 years of work experience in related field = 1 ✓ Less than 4 years of work experience in related field = 0	**3**
			– For Team Lead for Application Development points will be allocated as follows: o BE / B. Tech / MCA = 1 o Experience in Open Standard Enterprise Class Application Development in GIS platform-- ✓ >=5 years of work experience in related field = 2 ✓ 4 years of work experience in related field = 1 ✓ Less Than 4 years of work experience in related field = 0	**3**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
			– For Team Lead for Operations Management, Systems, Network & Maintenance points will be allocated as follows: o BE / B. Tech / MCA = 1 o Certification such as CCNA, CCNP etc. = 0.5 o >=5 years of work experience in related field =0.5	**2**
			– For Team Lead for Capacity Building & Change Management and all other activities points will be allocated as follows: o BE / B. Tech / MCA = 1 o Experience: ✓ >=5 years of work experience in related field = 2 ✓ 4 years of work experience in related field = 1	**3**
4	Maintenance			**10**
a	Maintenance	Overall maintenance approach	a. Approach to maintaining the complete system after installation/ commissioning the Geo-portal/ data clearinghouse: 5 Points b. Approach to committing personnel and other resources to the maintenance of the complete system: 5 points	**10**

Sl No.	Criteria/Sub Criteria	Description	Point System	Max Criteria/ Sub Criteria Points
5	Certification			**10**
a	**Certification**	Certification of the firm with CMMI or ISO. Photocopy of valid certificate needs to be submitted alongwith.	For CMMI Level-3 and above Certification: 5 Points For latest ISO 9001 Certification: 5 points	**10**
	Total Points			**100**

The Bidders are requested to provide the requisite evidences of their claims in serialized index.

8.3 Commercial Bid Evaluation

I. The Financial Bids of technically qualified bidders (i.e. above 70 marks) will be opened on the prescribed date.

II. Only fixed price financial bids indicating total price for all the deliverables and services specified in this bid document will be considered.

III. The bid price will include all taxes and levies and shall be in Indian Rupees and mentioned separately.

IV. Any conditional bid would be rejected.

V. Errors & Rectification: Arithmetical errors will be rectified on the following basis: "If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail".

VI. If there is no price quoted for certain material or service, the bid shall be declared as disqualified.

VII. In the event that there are 2 or more bidders having the same value in the financial bid, the bidder securing the highest technical score will be adjudicated as the "Best responsive bid" for award of the Project.

SECTION 4

TERMS OF REFERENCE

SECTION 4

TERMS OF REFERENCE

For hiring of Organizations/ System Integrators for "Setting up of a Geo-portal and a Data Clearinghouse for The West Bengal State Spatial Data Infrastructure (WBSSDI)".

4.1. Background:

The West Bengal State Council for Science & Technology (WBSCST), Government of West Bengal has developed district level GIS databases to support the process of Local Level Planning at the levels of district, Block and Mouza. In the absence of a single window access mechanism to spatial data sources in the State (an indicative list of such agencies is at Annexure-I) like Geo-portal and a Data Clearinghouse, it has been difficult and time-consuming to discover/ access spatial data sets useful in the local level Planning process. Those geo-spatial data sets acquired, maintained, and provided by various concerned state-level Government/ Private/ Academic/ or Civil Society Organizations in West Bengal are proposed to be covered in the Project. The Geo-portal and the Data Clearinghouse will primarily be used for providing access to spatial data/ metadata sets currently held by WBSCST, different line Departments and different District Database Centres set up under NRDMS. The data/ metadata/ services will initially be accessed by the concerned staff based at the districts from the NRDMS Centres and the Line Departments. These services will be extended to beneficiaries of various developmental schemes/ programmes and the general public with certain restrictions under provisions of the prevailing rules and regulations of the Government. Other organisations/ agencies will share their data/ metadata sets held or provided by them by publishing their details in the Geo-portal /Data Clearinghouse.

Over the past one and a half decade all the twenty districts of West Bengal State have been covered under NRDMS. Each District Database contains spatial and attribute data sets useful in local level planning processes in the sectors of Natural Resources, Demography, Agro-economy, Socio-economy and Infrastructure facilities. Respective Zilla Parishads and Line Departments have been depending upon the databases for meeting their data requirements. With increasing dependence of the Zilla Parishads, Line Departments and other stake-holders of local level planning on spatial datasets, a need has been felt to speed up the process of discovery of and access to up-to-date spatial datasets.

4.2. Introduction:

Under Department of Science and Technology's NRDMS Programme, West Bengal State Council for Science & Technology (WBSCST) – an autonomous body of Government of West Bengal – intends to develop a Geo-portal and Data Clearinghouse (as defined below) to support the task of Local Level Planning. WBSCST releases this request to solicit proposals from qualified and experienced firms/ organizations for setting up the Geo-portal and the Data Clearinghouse.

This Request for Proposal (RFP) describes the project requirement, scope of technical work, vendor selection process and the minimum information that must be included in the proposal. Failure to submit information in accordance with the RFP requirement and procedure may be a cause for disqualification.

4.2.1. Geo-portal:

A Geo-portal is a web site that provides a view into a universe of spatial content and activity through a variety of links to other sites, communication and collaboration tools, and special features geared towards the community served by the Geo-portal. As an open Web resource, a geo-portal should connect through open interfaces to data and services with similar interfaces. Catalogs and registries that conform to Open GIS Specifications play an important role in geo-portals.

4.2.2. Clearinghouse:
A clearinghouse is a decentralized system of servers located on the Internet that contain field-level descriptions of available digital spatial data. This descriptive information, known as metadata, is collected in a standard format to facilitate query and consistent presentation across multiple participating sites. A clearinghouse uses readily available Web technology for the WBSCST site and uses standards for the query, search, and presentation of search results to the Web WBSCST. A clearinghouse provides information about who is providing which authorized geo-information for which application (adapted from OGC's Glossary of terms:- http://www.opengeospatial.org/glossary)

4.3. Project Description:
In support of the above requirement, the vendor is primarily expected to install, customize, demonstrate and operationalise relevant hardware, software and data for the Geo-portal and the Data Clearinghouse mechanism. Access to and maintenance of the underlying master database will be done by uploading data from remotely available spatial data generating agencies and survey agencies. Key services will be provided as per the architecture and specifications mentioned in Section 6 of this RFP. Core staff of WBSCST will be trained on the functioning and operation of the equipment and provision of services so that after the completion of the project, it would be possible for the core staff to maintain the system on their own with minimal support from the vendor as per the terms and conditions of the warranty and maintenance agreement. As is required under a SDI, the Geo-portal will be regularly upgraded to help data/ service providers publish their metadata/ data / services for access by the customers over the web. Some key web applications also need be demonstrated for access. On the completion of the project, the set up will be run and maintained by WBSCST/State Government.

4.4. Detailed Scope

West Bengal State Spatial Data Infrastructure (WBSSDI) intends to engage a competent System Integrator (SI) for "Setting up of a Geo-portal and a Data Clearinghouse"

It may be noted that the project is aimed towards obtaining a TURN KEY SOLUTION from competent bidders who has experience of implementing similar Geo-Portal solutions.

The Geo-Portal will provide a single window access mechanism to metadata / spatial data sources in the State. Through this Geo-Portal various stakeholders will be able to populate and publish data and metadata, discover / explore metadata through Catalogue service, consume data through published data-delivery /map-delivery services based on privilege based access control mechanism. The fundamental objective is to develop a GEOSPATIAL DECISION SUPPORT SYSTEM (GeoDSS) with the aim to provide interoperable access to distributed geospatial web services to aid decision makers in forming, analyzing, and selecting alternatives. The Geo-Portal will contain spatial and attribute data sets in the sectors of Natural Resources, Demography, Agro-economy, Socio-economy and Infrastructure facilities.

The Geo-Portal will be totally OGC compliant, conform to current NSDI standards and platform independent so that users can download data and combine that from various other spatial data serving sources and undertake analysis at their own end. The Geo-Portal should allow metadata harvesting by and data exchange with NSDI Geo-Portal.

The proposed solution must comply with the MANDATORY REQUIREMENTS including scalability, fault tolerance and cost effectiveness. Appropriate sizing needs to be done and

redundancies need to be planned to ensure proper availability. Overall architecture must be optimized in terms of high performance, low power consumption and latest server technologies coupled with reduced total cost of ownership.

It may be mentioned that the SDI servers will be deployed in the State Data Centre.

The broad Scope of Work will be as follows:

1. Supply of hardware, software, Operating Systems required for the solution
2. Installation, customization, integration and commissioning of the hardware, software in order to implement the 'Geo-Portal and clearing house' with all the functional and technical requirements mentioned in this RFP.
3. Migration and / or populating data required for operationalization of the system
4. Training, Hand-holding and successful roll out, operationalization and commissioning of the entire system.
5. 5 year Warranty period after successful commissioning.

6. Regular upgradation of the system to help data/ service providers publish their metadata/ data / services for access by the customers over the web during the warranty and maintenance period.

Detailed Scope and Deliverables

4.4.1 Deliverable 1: Needs Assessment Report containing Requirement analysis

The selected SI, in collaboration with or under directive of WBSCST will identify Spatial Data stakeholders (both contributors and consumers) and NRDMS to understand the requirement and purpose. The SI should put serious efforts to meet the requirement of the Govt. of WB and GoI for developing such a Spatial Data Infrastructure. It will be the responsibility of the SI to develop a simple-to-use, result-oriented, user-friendly and game-changing Geo-Portal that must prove to be beneficial to the stakeholders.

The SI at this stage should also undertake studies for deployment and web-hosting requirememts and finalize System Architecture, Deployment Roadmap of server-storage-software, system security and access rules, network security and deployment requirements.

Deliverable(s): Needs Assessment Report including the following:

1. Potential applications, necessary data and required resources
2. Nature of User Interfaces
3. Database design requirement
4. System Architecture Requirement,
5. Deployment Roadmap of server-storage-software,
6. System security requirement and access rules,
7. Network security and deployment requirements
8. Geo-Portal hosting requirements
9. UAT test cases and Test result formats that will form the base for UAT
10. Project Governance structure
11. Implementation milestones in the form of PERT chart

4.4.2 Deliverable 2: Real world object catalogue

Based on the analysis of the user requirement / functional requirement of the system, SI has to prepare a detailed catalogue of underlying real world objects clearly defining each object that will go into finalization of Data Model. The catalogue will form the base for demonstrating semantic interoperability between various spatial data nodes of the data providing agencies/ Line Departments.

System should be able to crawl, catalog, manage and automatically harvest metadata, including spatial extent, keywords, title, and thumbnails for Spatial datasets stored in multiple servers and spatially

aware databases like Oracle, Sql Server and PostGIS. System should be able to catalog and publish geospatial imageries, vector data, terrain data, point cloud data, any OGC-compliant third-party web service, and other digital data such as documents, movies, pictures, URLs, any electronic content. The server application should catalog all the datasets stored in different servers make them available in an index to the client. It should allow users to query the content lying in different servers and should serve the queried data to client immediately. The end user must be able to query this content based on footprint or metadata keywords, once retrieved the user must be able to download desired custom content.

The system should be able to pick the new or changed data, catalog it and should be able to serve it immediately. The system should also support scheduling of cataloguing process. The system should be able to catalog the data directly and should publish the data in open standards (as OGC web-services), so that the clients can request for same via such open interfaces and open protocols. The cataloguing should be based on OGC standard CS-W.

The catalog component should also allow an administrator to publish the data through 'REST' interface, which makes the system RESTful. System should allow the administrator to edit and update the metadata information.

There should be a facility of publishing third party OGC Services (minimum WMS, WFS, WCS, WPS, WRS and CSW), to the central catalogue, via a license free admin tool, so that authorised Administrators can publish (Not Recreate) third party services from other agencies to the central catalogue, thus enable the concept of a federated search. Once these services are published, user must be able to search the central catalogue and get results from the WBSSDI services along with all other externally published services.

Deliverable(s): A Real World Object Catalogue useful in developing the Data Models (conceptual/ physical) for implementation in the subsequent stages of the Project. The catalogue will form the base for demonstrating semantic interoperability between various spatial data nodes of the data providing agencies/ Line Departments

4.4.3 Deliverable 3: Conceptual Data Model

A conceptual data model bringing out the objects and the associations is required to be developed and appropriately documented. Unified Modelling Language (UML) formalism confirming to the specifications of ISO 19109/ISO 19139 (Geographic Information – Rules for Application Schema) is required to be used in its development. The Conceptual Model is expected to be physically implemented for storing geo-spatial data sets in an OGC-compliant Relational Database Management System (RDBMS) or distribution in OGC's Geography Mark up Language (GML) specification version 2.1.2 or higher (GML version 3.1's Simple Feature Profile 1 or 2 will be preferred). The Conceptual model should address software recommendations, refinement of physical system configuration (servers, network, and storage requirements, etc.) provided at Annex as well as a conceptual database design based on the applications identified and master data list generated during the Requirement Analysis/ Object Cataloguing phase.

System should be able to manage hierarchical data model of raster, vector, point cloud and business data per dataset or collection (sub-tree). It should allow the Data Managers to develop complex hierarchical data models of heterogeneous gridded data to securely expose well-defined web service layers to end users. System should allow the data managers to hierarchically aggregate disparate data sources into homogenous layers. Depending on the data and type of user, the administrator should be able to set permissions and restrictions to each user/role for every aggregate/dataset in the system. System should automatically mosaic all raster data referenced in an aggregate sub-tree, with *pyramid* provisioning. System should automatically mash up raster and vector datasets referenced in an aggregate sub-tree as a seamless map using the defined styles in the system.

Deliverable(s): Conceptual Data Model in UML on a standard CASE Tool implementable in RDBMS with Spatial blades/ OGC's GML, with appropriate documentation

4.4.4 Deliverable 4: Creation of a Centralised database

A web-enabled centralized database is required to be developed at WBSCST to store metadata, spatial, attribute or statistical data sets. Line departments/ agencies of Government of WB will remotely (Web-based) update the database from the individual Data Centres/Line Departments using OGC standards-based transaction based Web Feature Services (WFS-T).

The spatial datasets are available mostly in MapInfo/ ESRI .shp formats linked to various attribute and statistical data. In some cases, attribute or statistical data sets may be provided as MS Access/ Excel or Dbase III/ IV files for migrating into the RDBMS to be developed. The database should be created in an industry-standard enterprise RDBMS with appropriate data security and fine grained access control environment. Proper indexing mechanism of data sets should be adopted to facilitate efficient search and access. Associated metadata for the geo-spatial data sets should also be appropriately included into the database to support discovery and access by a group of concurrent users over the net. The existing data available at WBSCST adds up to about 100 GB and is likely to increase in the coming years to 10 TB. The system should be capable of handling minimum 500 concurrent users which eventually is expected to increase to 1000 over the years. Load balance Mechanism for updating of existing data sets on the database using OGC standards-based Web Feature Service (WFS) should be provided to facilitate updation/ maintenance of the database from remote Clients located in the individual Line Departments/ Agencies of the Government of West Bengal/ Government of India. Scalability of the size of storage and access should be kept in view in working out the system configuration.

Individual Line Departments/ Agencies of the Government of West Bengal and District & Block SDI nodes should be able to develop and maintain their spatial/ attribute data nodes as per their mandates in the interest of efficient provision of up-to-date data sets using the System to be developed.

Deliverable(s): A Centralized database containing available metadata, spatial, attribute or statistical data sets from NRDMS District Data Centres and various Line Departments/ Agencies of Government of West Bengal as provided by WBSCST with facility to remotely update the Database and metadata from the individual Data Centres/ Line Departments with a provision to integrate District, Block & Line Department Nodes.

4.4.5 Deliverable 5: Creation of Geo-portal

Following the specifications of OGC's Geo-spatial Portal Reference architecture, a Geo-portal should be developed, demonstrated and installed to provide portal services, portrayal services, data services, and catalogue services. The portal services should be available to address the needs of the viewer, discovery, management, authentication & access control and exposed services. The portrayal services should include map services, styling services, coverage services, and the map context services. The data services should include features, coverage, and Symbology management. The catalogue services should include data discovery, service discovery, catalogue update and query language. The development should be done in an iterative way based on feedbacks received from the users and WBSCST staff. Some of the other specifications for the Geo-portal are:

- The portal will be used as a starting point and frequent gateway to access web resources and Geospatial data content
- Request portlet specifications to allow portlets to be portable between portal framework environments
- It has also support / allow features like Web Services for Remote Portlets, portrayal services, OGC based geo-visualization etc.
- Customization of the software as per necessity and commonly used application development is also part of the job.

- Geoportal developed must have capability to handle data storage, retrieval and update. It has to also support automatic and manual form based input/update of metadata using required services.

Web processing

System should support Server-Side Geo-processing via OGC Web Processing Service (WPS). Server Application should allow the users to run and execute spatial models published from a Desktop application. The system will support on demand spatial analysis by hosting desktop based spatial models on web. It will allow the users to immediately visualize the WPS process outputs on the map and download them. System will allow the users to create value-added data products from thin clients.

The Spatial models can be hosted for various application utilized Vector, raster and Terrain data available in SSDI

For Field update and view

The system should be able to adjust various screen size of the tablet to view the data from field in a smart phone/ tablet optimized portal. Using the tablet based apps department authorised users can update , upload GIS data from field into SSDI including photos and attribures in OGC service. All the field based online and offline editing will be through OGC WFS-T service and as per authorized project specific privilege. Point, line , polygon based digitisation tools should be available in the field app . System admin should have priviledge to associate users to specific project in the field app . Number of Tablet user will be 15 currently.

Crowd Sourcing Facility

The system should allow citizens to enrich the published dataset via photograph and layer specific predefined forms will be available to them to update the info. The System Administrator may need to review and validate the attributes before they are finally uploaded in the System. It should allow Geo processing.

The Portal should manage all these feedback and maintain a dashboard of the same and published. At the minimum, the Mobile application should enable authorized users to find a location/locate a feature, enter field details if he is not satisfied with the attribute, capture photos and upload it to the central servers.

The Administrative console along with the dashboard should be tightly integrated with SDI Application software and the forms should be created on the fly as per dept requirement.
The Crowd sourcing app should be FREE of cost for Citizen to download and use.

Custom Application Development

Hence flawless working of at least 50 commonly used applications from the Needs Assessment Report, from various Line Departments/ Agencies based on availability of data sets and feedback from WBSCST should be demonstrated. The applications will consist of simple combined online spatial and attribute queries on the database, printing of query results in the form of at least A4 size maps/ reports. However, ten of them should utilize various services including WFS, WPS as sample demonstration to be followed up with larger number of applications by the end users. Examples of such applications are: Municipality Management (electricity, pipeline, sewerage line), Watershed Management (identification of suitable locations of water harvesting structures, landuse management etc.), Education Information System, Agricultural Information System, etc. Android based application for updation of geospatial information with attributes in Server from remote location etc. A simple User Interface should be implemented as an application so that any user can create User Defined Queries of his/ her choice for easy online retrieval of maps and reports from the database.

User Management Module

There is a requirement for design, develop, and deployment of a comprehensive user management module wherein below functions should be there

a) User registration, modification, deletion
b) Browser based administration module with control of functions on the geo-portal

It is expected that initially the portal might attract 500 concurrent users and once the portal stabilizes the number concurrent users may go up to 1000.

Dynamic Query Builder

There is a requirement to design, develop, and deployment of a dynamic query builder based natively on Spatial Database, wherein the user should be able to perform multilayer multi parameter spatial and aspatial queries, user should also be able to use cardinal (relationship based MIS datasets) as parameters for such queries. The query builder should purely work on Spatial database based connections for performance.

Deliverable(s): A Geo-portal with the requirement/ specifications mentioned in the RFP

4.4.6 Deliverable 6: Publishing metadata of data providers in the Geo-portal/ Clearing house

A provision should be made in the system to permit various geo-spatial data providers in the State to publish their metadata sets into the centralized database and get them registered either directly at WBSCST or from a remote location using the Web. The Metadata standards prescribed in NSDI 2.0 should be adopted. The Metadata standards prescribed in ISO 19115 / 19139 should also be adopted.

A kind of spatial drop box can be provided for various line departments for sharing their data this feature sets up listeners on directories to automatically find new incoming raster, vector and multimedia files. A dedicated application should runs on its own server and monitors the input folders. When a file is added to an input folder, the drop box determines if it is a file of interest. If it is, it then places that file in the queue, from which it is retrieved when it is ready to ingest by another OGC compliant server

Deliverable(s): A web-based service for registration/ publication/ upload/ updation of metadata at the Geo-portal/ Data Clearinghouse.

4.4.7 Deliverable 7: Customization of data/ software for creation of Geo-portal

Commercial-off-the-shelf Spatial Data Infrastructure (SDI) software package with OEM certification should be customized and installed to support provision of the following web services:.

Upgrades/New Versions of the software has to be provided by the vendor free of cost during the period of Warranty and AMC. As part of the scope, the following services are to be created, customized and demonstrated:

- Catalogue Service on Web (CSW) for both uploading and download of metadata by remote sites / Line Departments / NRDMS District Data Centres.
- Web Map Service (WMS) for provision of maps (spatial data with colours, styles, legend, annotation etc.). Facilities for preparing and serving maps on the fly from boundary (district, Block, Mouza etc.) data and various associated attribute data should be provided. User should be able to select and retrieve both spatial and attribute data sets for the map service on line.
- Web Feature Service (WFS/GML/WFS-T) for upload/ download of OGC's GML data (OGC's GML 2.1.2 or higher specification version should be followed; GML version 3.1's

Simple Feature Profile 1 or 2 will be preferred) conforming to WBSCST's OGC GML Application Schema and other data formats like MapInfo format and ESRI's .shp format.

- ❖ Web Registry Service (WRS) for enabling data/ service providers to register their datasets / services onto the data clearinghouse.
- ❖ Web Coverage Service (WCS) for sharing coverages like satellite images from the database server
- ❖ Web Processing Service (WPS) for geoprocessing of GIS data for analysis A feature service should be enabled in the Geo-portal to download geo-spatial data sets from the database confirming to the designed GML application schema to facilitate value addition. Provision for accessing spatial data sets on the server/ Geo-portal from a PDA or a mobile phone/ Tab (Android, iOS, Windows) using standard plug-ins should also be made. Web Registry Service (WRS) for data registry

Deliverable(s): Customized software code for the Geo-portal with necessary documentation and operational provision of services like CSW, WMS, WFS/ GML, WFS-T, WRS, WCS conforming to OGC standard specifications and WBSCST's application schema/ data model. Conformer to OGC (core)/ WBSCST (application) standards should be demonstrated using 2/3 vendor GIS software package to show Geo-spatial Interoperability between the Geo-portal data sets/ processes and WBSCST's/ user's package. The customized geoportal software should also adhere to the OGC Standards like - Style Layer Descriptor (SLD), Web Feature Service (WFS-T), Web Map Context (WMC), Metadata (ISO19139), Web Processing Service (WPS), Web Registry Service (WRS), Web Mapping Tile Service (WMTS).
OGC Certificates need to be produced for all the above mentioned OGC Standards/ Services.
SRS document for customization/ development of software to support its maintenance should be provided.

4.4.8 Deliverable 8: Security system to handle data, user identity and network

In order to secure the Geo-portal/ data clearinghouse from unauthorized access, an appropriate security implementation having provisions to safeguard data sets, manage user identity and transaction security, detect unauthorized intrusion, permit authorization/ authentication, and non-repudiation based access controls on resources is required to be implemented. The Security system should have facilities to create federated access and single sign on, on-the-fly creation of secured access and functionalities for user-friendly operations.

The system should also provide fine grain security , Security Service built on some Latest Industry Standard specification for the following operations: Allows fine grain security and management of authorization , Read, Write, Update, Delete, Manage . Spatial Security for WCS Requests Scale based Security for WMS Requests depending on the data and type of user, the administrator can set permissions and restrictions, on data usage. . It can secure data depending on the spatial extent (for restricted areas), on scale, and on resolution. Thereby depending on the data and type of user, an administrator can set permissions and restrictions

Whenever the System Administrator creates the profiles of users and data providers, the System should notify the corresponding user/data providers about his account information. During the query set up by the user, the system should send notification (reply for queries) to the Data Providers. The system frequently notifies the users of any relevant information about the queries.

Geo-portal will have the following categories of users:

End Users: They must be able to login, create/change passwords and browse 'relevant' parts of the portal; discover information, access objects/features using key words / coordinates; check the status of ongoing queries created by them; create new queries and modify the rules of predefined queries

before it has started; browse a Data catalogue.

Data Providers: The data providers should be able to put metadata for users; browse the list of requests made by the users; provide catalogue services; should be able to restrict the end users for specified Information; check the status of the user requests.

System Administrator: The System Administrator should set profiles for end users and data providers; should have control over data access by users; add new data products to the existing Catalogue and remove data products from the Catalogue; restrict user accessing classified information; give roles to various users based on request of adding data or downloading data; customize the Home page of the Geoportal like adding news flash, latest developments, logo etc. Admin should be able to bar the users based on their IP address. Admin should be able to grant and revoke privileges on data to different user groups.
Visibility and control mechanisms must be available to allow the system administrator, if suitably authorized, to perform the following tasks:

- determine the status of all processes in the System
- determine the status of disk subsystems in the System
- restart / kill processes
- The System must notify the system operator when any component has failed.
- They should have control over data access by users.
- Whenever the System Administrator creates the profiles of users and data providers, the System should notify the corresponding user/data providers about his account information.
- During the query set up by the user, the system should send notification (reply for queries) to the Data Providers.
- The system frequently notifies the users of any relevant information about the queries.

Deliverables: A comprehensive security solution fully integrated with the Geo-portal. It would cater to user identity management (AAA), Single-Sign-On, user registration and functionalities for user friendly operations. It should have the support to apply security based on spatial extent, scales, resolution, and user functional roles and privileges.

Upgrades/New Versions of the software has to be provided by the vendor free of cost during the period of Warranty and AMC.

4.4.9 Testing of the Geo-portal/ database/ services

Different units of the envisaged system like the Geo-portal or the database or the geo-web services should be thoroughly tested for individual satisfactory performance.

Deliverables: Functionality testing report in a pre-defined format mutually agreed upon by the vendor and WBSCST.

4.4.10 User acceptance testing (UAT)

A user acceptance test should be carried out to test the effectiveness, efficiency and user-friendliness of the integrated system. A set of criteria will be defined and finalised with the users in advance for testing of the system. The Needs Assessment Document drawn up at item 1 of this Scope of Work should form the base for the user acceptance testing.

Deliverables: UAT report in a pre-defined format mutually agreed upon by the vendor and WBSCST.

4.4.11 Final deployment of the complete system

Based on the outcomes of the user acceptance test, the complete system should be integrated and

operationalised for use. The complete system and its use should be presented to an audience that might include elected representatives, officials from different tiers of the Governmental hierarchy from the State, District, Block, GP; other employees of different concerned organizations and selected citizens with an opportunity for a question and answer session.

Deliverable(s): Public presentation, generally utilizing electronic visuals to enhance understanding of the information presented through a series of at least 3 workshops in different parts of West Bengal. An executive summary on the system and the possible outcomes may be shared with elected representatives and senior officials of the Government to make them aware of the availability of the Geo-portal/ data Clearinghouse facility.
The following reports are to be supplied by the vendors after completion of the work and before hand over of the project:

(i) Project completion report containing deliverables check list.
(ii) Database design document along with ERD (Entity Relationship Diagram).
(iii) Application Architecture Document.
(iv) Detail Hardware/System Configuration Document.
(v) Complete Source Code for all the applications developed under the project by the vendor.
(vi) User & Administrator's Manuals.

4.4.12 Training and Hand Holding of the organizational staff

In order to help use and manage/ maintain the complete system, 20 users are required to be provided hands-on training for 5 days at WBSCST. A group of 50 persons from different user organisations of West Bengal State is required to be exposed to the use of the Geo-portal and the available services at WBSCST for three days in two batches. Two weeks code work through for the Developers of SSDI team in order to explain the source code is to be arranged. Two days' training for WBSSDI team twice a year for five years after **Go-Live**.

Apart from training, the vendor has to undertake handholding for various category of users for a period of 24 weeks.
Deliverable(s): Successful Training Completion report to the satisfaction of WBSCST. Successful Handholding completion report.

4.4.13 System Maintenance

The complete system consisting of WBSSDI Application Geo-portal and the associated hardware and software should be covered under a five years comprehensive maintenance warranty/ contract **after Go-Live** to facilitate provision of web-based geo-services on a 24x7 mode. After WBSCST takes over the Geo-portal, on-site maintenance should be provided for twenty four (24) weeks period only. Subsequently, the maintenance should be carried out by a combined strategy of 'once a fortnight' on-site maintenance and attending to problems/ failures on as-and-when call basis within 24 hours.

Sl No	Level of Support	Description	Penalty of Missing Turnaround Time
1	Level 1	Bidder need to appoint SPOC (Single Point of Contact) for this project Technical Support accessible with mobile Phone from 8AM to 10PM , all issue should be documented and informed daily to the PI of the project	a sum of 0.1% of the value AMC which suffered delay or gross negligence for each completed week or part thereof subject to a limit of 1% of the AMC value
		The SPOC should gather within 24hr as much as information as possible of the problem including screenshots and pass on to relevant SME (Subject Matter Experts)	

		Level 1 should handle by itself 70-80% of user reported issue and solve it before further escalation.	
		Turnaround time of resolve is 24Hr	
		This is be mostly SOB explanation and remote support	
2	Level 2	This is more in depth support involving administrator level access	a sum of 0.1% of the value AMC which suffered delay or gross negligence for each completed week or part thereof subject to a limit of 1% of the AMC value
		Support personnel with deep knowledge of the product or service need to deploy in this	
		Bidder need to Deploy SME on this level, their contact detail and Name should be part of Escalation Matrix Submitted	
		Level 2 Mostly should be dealt with Feature Bug Issue and Sub Modules not working in the main Geoportal	
		After Escalation turnaround time is 48 Hr	
3	Level 3	This Level should be dealt with System Down and Major Functionality not working	a sum of 0.1% of the value AMC which suffered delay or gross negligence for each completed week or part thereof subject to a limit of 2% of the AMC value
		Bidder should deploy most highly skilled product specialists, should include the creators, chief architects, or engineers who created the Geoportal	
		Turnaround time for this is 5 working days	

Liquidated Damages (LD) of Milestone Delivery Before Successful Signoff and Handholding

a) Time is the essence of the Agreement and the delivery dates are binding on the IA In the event of delay or any gross negligence, for causes attributable to the Implementation Agency, in meeting the deliverables, the Purchaser shall be entitled at its option to recover from the IA as agreed, liquidated damages, a sum of 0.1% of the value of the deliverable which suffered delay or gross negligence for each completed week or part thereof subject to a limit of 1% of the relevant deliverable value.

b) The Purchaser may without prejudice to its right to effect recovery by any other method, deduct the amount of liquidated damages from any money belonging to the IA in its hands (which includes the -- Purchaser's right to claim such amount against the IA's Bank Guarantee) or which may become due to the IA. Any such recovery or liquidated damages shall not in any way relieve the IA from any of its obligations to complete the Work or from any other obligations and liabilities under the Contract.

c) Delay not attributable to the IA will be considered for exclusion for the purpose of computing liquidated damages.

Deliverable(s): Uninterruptible availability of the Geo-portal/ data clearinghouse over the web/ net

4.4.14 Source Code

Source code developed for the project should be the proprietary right of WBSCST and should be submitted to WBSCST with proper documentation and code work through.

Deliverable(s): Source Code with proper documentation

4.4 **Time schedule**

WBSCST suggests a timeline of 21 working weeks for the entire work. Work carried out by the Vendor in terms of both quantity and the quality of deliverables shall be assessed by the project Review Committee of

WBSCST from time to time to be decided by WBSCST.

4.5 **Suggested Completion Period of Deliverable(s)**

Scope of work	**Suggested Completion period (W=Week)**	**Deliverable(s)**
1.Requirement analysis	W1 – W2 (2 weeks)	Need Assessment Report Software Requirement Specification (SRS) delivery and signoff
2. Preparation of real world object catalogue	W1 – W2 (2 weeks)	Real World Object Catalogue
3. Conceptual Data Model development	W2 – W4 (3 weeks)	Conceptual Data Model
4. Customisation of data/ software for creation of Geo-portal	W4 – W9 (6 weeks)	Customized data (GML)/ software code for the Geo-portal with necessary documentation
5. Procurement and installation of hardware and software	W2 – W9 (8 weeks)	Required hardware and software installed at site to WBSCST's satisfaction
6. Centralised database	W5 – W10 (6 weeks)	A Centralized database containing available spatial, attribute or statistical data sets and metadata sets
7. Creation of Geoportal , Publishing metadata in the Geo-portal/ Data Installation of the security system	W4 – W10 (7 weeks)	A web-accessible Geo-portal with the above requirement/ specifications
8. User acceptance testing followed by Security audit	W11 – W16 (6 weeks)	Test report, Security audit clearance report
9. Final deployment and Go-live of the complete system and training to operational staff	W17 – W21 (5 weeks)	Web-accessible Geo-portal and data clearinghouse to the satisfaction of WBSCST conforming to the availability of all the above relevant deliverables along with the reports mentioned in RFP- Trained staff to the satisfaction
10.Handholding	W21-W32 (12 weeks)	Handholding of the users
11. Onsite system maintenance	W21-W44 (24 weeks)	Onsite system support for uninterruptible availability of the Geo-portal/ data clearinghouse

4.7. Responsibility of WBSCST

4.7.1. WBSCST shall supply the relevant documents to form the basis for conducting the requirement analysis, preparing the feature catalogue, and design of the envisaged spatial database. Both spatial and attribute data sets to be incorporated into the database will also be provided. An indicative list of typical user requirements is given below:

Typical User Requirements:

Administrative Boundary map showing

1. State Boundary
2. Division Boundary
3. District Boundaries
4. Sub Division/Block Boundary
5. Gram Panchayat jurisdiction maps
6. Mouza boundaries
7. Panchayat Constituency
8. Zilla Parishad Constituency
9. Municipal Boundary
10. Ward Boundary
11. Health Jurisdiction
12. Education Jurisdiction
13. Police Station limits
14. Assembly Constituency Maps for Assembly and Parliamentary elections
15. Location of Polling Stations and its jurisdiction for General Elections.
16. Drinking Water requirement/facilities under scarcity relief program with maps.
17. Map showing rainfall graphs for drought analysis
18. Preparation of Maps and Graphs on
    - Rainfall,
    - Ground water,
    - Crops and sowing operation and
    - Drinking water status for Scarcity Relief meeting Infrastructural facilities
    - Tourist spots,
    - Industries location,
    - Health Facilities
    - Education facilities
    - Anganawadis
    - Drinking water facilities
    - Post & Telegraph
    - Helipads
    - Veterinary
    - Hostels (SC/ST/BCW/Others)
    - Libraries
    - Banks
    - Location of Hydropower stations etc.

Thematic maps :

- Land Use / Land Cover
- Forest
- Wasteland
- Soil
- Slope
- Geology
- Mineral Resource
- Hydro-geomorphology
- Watersheds, sub watersheds and micro watersheds
- Drainage
- Forest

- Water bodies (tanks/rivers/ponds)

- Command Area etc.
- Combination of many thematic layers.
- Combination of many thematic layers with infrastructure details based on different development programs.
- District/Block map with GP boundaries and road information/transport network.
- Preparation of microwatershed maps showing location, drainage, wasteland, soil, slope, LU/LC, rainfall, Mouza Settlement)
- Microwatershed boundaries map of 500 ha each including drainage network, M.I.Tanks, Mouza boundaries.
- Maps on Drainages, Mouza boundaries, and watershed boundaries.
- Drainage network with Watershed boundaries.
- Drainage map and geological map for preparation of watershed development action plan
- Soil map, Land use/Land cover map for preparation of watershed development action plan.
- Soil map, Potential land use, Land Capability, Soil Depth and other related maps.
- District Map with Mouzas along with Panchayats to establish Agriculture Clinics and Watershed Boundaries
- Drainage map with Mouza boundaries.
- Soil map/ Watershed with Drainage network/ Land use-Land cover map/ Wasteland map of all the Blocks.
- Maps on Location of Agriculture Information Centers of the District
- Forest map, Drainage map, Soil map, LU/LC map, Waste land map with watershed boundaries for action plan preparation
- District/Block Maps with Mouza Boundaries and M.I.tanks
- Maps on Blockwise location of M.I tanks having fishing activities.
- Technical Report on Status of M.I. Tanks for prioritization
- District/Block Minor irrigation tanks and Mouza boundaries.
- Location of horticulture farms
- Location of police stations and its jurisdiction
- Location of tanks under fishing
- Location of continuing education centres and nodal centres and Adult education centres
- Natural Hazard Zonation Maps.
- Mouza wise Arsenic/ Fluoride distribution maps
- Location of Schools with implementation of Rain water harvesting method
- Location of Schools with drinking water and toilet facilities.
- Location of Veterinary facilities with live stock distribution
- Location of Indira Awas Yojanas Houses
- Location of work done trough NREGA programme
- Location of work done trough Sanitation programme.
- Location of work done through various other programmes by PRIs, Line Departments and other organizations

An indicative list of data sets to be provided is listed below :

- District Boundary
- Block Boundary
- Gram Panchayat Boundary

- Mouza boundary
- Gram Panchayat Boundary
- Panchayat Samiti Constituency
- Zilla Parishad Constituency
- Assembly Constituency
- Parliamentary Constituency
- Watershed Boundary
- Drainage
- Tanks/ lakes
- River
- Reservoir
- Geology/Rock type
- Land use/Land cover
- Soil
- Forest (type, extent)
- Elevation/Slope
- Road Network
- Rail network
- Infrastructure facilities (health, education, drinking water etc.)
- Users/ agencies/ stakeholders/ data providers involved with spatial data in the State Government are:

Data providers:

- Land & Land Reforms Department (Mouza and cadastral boundary, land ownership information)
- Public Works Department (road network), Government of West Bengal
- Directorate of Mines & Minerals (Geological features, rock types, mineral resources)
- Forest Department (Forest boundary, types), Government of West Bengal
- Environment Department, Government of West Bengal
- Kolkata Metropolitan Development Authority
- Kolkata Municipal Corporation/ Development Authorities
- Water Resources Development Department (Major & minor Irrigation)
- Zilla Parishad/ Panchayat Samiti/ Gram Panchayat
- West Bengal Biodiversity Board (Floral and faunal species, locational tag)
- Kolkata Metropolitan Water & Sanitation Authority
- Panchayats & Rural Development Department
- West Bengal Industrial Development Corporation
- West Bengal Industrial Infrastructure Development Corporation
- District Industries Centres (Location of industries, related data)
- West Bengal Urban Water Supply & Drainage Board (Water supply and Sewerage pipelines)
- Bureau of Applied Statistics and Economics (Rainfall and other statistical data)
- Geoinformatics & Remote Sensing Cell, DHESTBT, Govt. of West Bengal (Thematic maps)
- West Bengal State Council of Science & Technology (NRDMS maps/ data)
- Kolkata Environmental Improvement Project
- Line Departments of Govt. of West Bengal
- Panchayati Raj Institutions (PRI)
- District Administrations
- Other organizations like Tea Board, JMDC etc.

4.7.2. WBSCST will provide the office space for setting up the Geo-portal and the Spatial Data Clearinghouse node/ servers and the internal network.

4.7.3. The licenses on the requisite system software are to be procured in the name of WBSCST (Perpetual license).

4.6 Competency and expertise :

WBSSDI project requires system professionals working in the areas Development of Web portal, Geoportal, SDI Design and Development of Geo-relational Databases; and Software coding/ programming. They should have adequate understanding and knowledge of the complexity of geo-spatial data and metadata, Geographic Information System/ Internet GIS/ Image Processing System, application of GIS/ Image Processing in domain areas like Watershed Management, Land Use Planning; Facility Management etc. Understanding/ exposure to emerging standards/ techniques in the field of Geo-spatial Technologies like OGC's Unified Modelling Language (UML), W3C/ OGC's XML/ GML, and ISO 19000 standards like ISO 19109 (Rules for application schema) etc. are essential for the work. They should have experience of working on Spatial Data Infrastructure (SDI) software packages designed to serve different geoweb services.

4.9. Review committee

A project review committee will be constituted to review the technical progress made by the Vendor at regular intervals. Vendor shall report the progress made in each item of activity to the Committee as per the finalized work schedule.

SECTION 5

TECHNICAL SPECIFICATIONS – SUGGESTED ARCHITECTURE

Section 5

Technical Specifications - Suggested architecture

The proposed web-based geo-portal has to be developed using Web based Server based on OGC/ ISO standards. The web portal should allow the users spread across the internet, to view and query the spatial information and the related maps. This information shall be picked from a central server repository. The Central repository will be on standard RDBMS package. The component should be an integral part of the system and users will access this component through the portal. The portal should cater to WMS/WFS/WCS/CSW/WFS-T/WRS/WPS and other Portal services. Post implementation services and support on all software products in the solution based on the latest versions of OGC/ ISO technical specifications should be provided by the vendor free of cost for a minimum period of five years. Map services must also be created to access the spatial data from the repository. Based on the security features of the Web portal, users will be allowed to access the various services will be allowed to access various services as per their category.

System Architecture:

The proposed system will be a web based system built to serve the users spread over the Internet and intranet. The server-side will host the web enabled database for serving spatial data already existing with WBSCST and other Organization. WBSCST will be able to run the web applications for different geo-web services on web browsers. Typically, the WBSCST will request information from an Internet server holding the data repository. Then the server will process the request and send the information back to the WBSCST viewer. The server components, i.e., the web server/application server and the data server will form a part of the server architecture. Only authorized/registered WBSCST's staff will have access to the server application/ database.

This architecture will have to be developed specifically for Internet applications for publishing spatial data. The system should be potentially capable of getting scaled up to handle state-wide district NRDMS centres and various Government Departments/ Organizations. It should also meet server capacity needs as web site access demand increases. WBSSDI should have an interface with the India Geo-portal as and when it is available under National Spatial Data Infrastructure (NSDI).

The Web Server will host HTTP server and perform content caching, etc. while application server will host the applications for providing portal services. The database servers will host RDBMS. A hardware firewall will check all the dataflow between the Web Server and the database server. The users of the system will access the web application. The database will be accessed by the web application only. This will provide a clear segregation of three different layers such as user interface, application & business logic and database layers.

The components are as follows:

Servers:

Web & Application servers (One each) - 2
Database Server – 2
Security-cum-Backup Server – 1

A minimum system configuration has been provided here. The bidders are expected to assess the configuration and suggest their own based on the software product/ portal requirement. The average web response time should be around 10 seconds. ISO 9000 certification for manufacturing from OEM should be provided by the vendor

Geo-portal Application/ Web Server:

The Web server will host the portal application. User will connect to this application over the Internet. This application runs on the Web server and will interact with Database server. Only authorized users will have access to the Portal services. It is expected that initially the portal might attract 500 concurrent users and once the portal stabilises the number of concurrent users may go up to 1000.

Database server:

The database server hosts the standard RDBMS. A backup database server will also be provided. The Web server will interact with this server as the gateway to spatial data stored in a RDBMS. The spatial data stored in the database server shall be scalable to cater to large volumes of raster as well as vector data of other agencies hosted on the web in future. Security servers serve the purpose of keeping the data safe from intrusion/misuse/snooping and for identity management.

Portal Requirement:

Users Data Providers System Administrator System

Users:

They must be able to login, create/change passwords and browse 'relevant' parts of the portal. They should be able to discover information using key words. They should be able to access objects/features using key words/coordinates. They should be able to check the status of ongoing queries created by them. They should be able to create new queries and modify the rules of predefined queries before it has started. They should be able to define new query formats. They should be able to browse a Data catalogue.

Data Providers:

They should be able to put metadata for users, browse the list of requests made by the users. The data of data providers shall be OGC compatible. They should be able to provide catalogue services. They should be able to restrict the end users for specified Information. They should be able to check the status of the user requests.

System Administrator:

The System Administrator sets up profiles for end users and data providers. They should have control over data access by users. They should be able to add new data products to the existing Catalogue. They should be able to remove data products from the Catalogue. They should be able to restrict user accessing classified information.

System:

Whenever the System Administrator creates the profiles of users and data providers, the System should notify the corresponding user/data providers about his account information. During the query set up by the user, the system should send notification (reply for queries) to the Data Providers. The system frequently notifies the users of any relevant information about the queries.

Annexure

Details of the indicative configuration of the hardware/ Software

The proposed hardware and software components must not be declared end of support within seven years from the date of bidding. This has to be mentioned in the MAF.

A. Hardware Specification (Servers related): SI should quote & provide OEM's authorization letter. All the equipments should be from OEMs.

1. Integrated Rack with accessories:
Number of units sufficient to house all the servers and networking equipment.

Sl. No.	Component	Specifications
1	Minimum specifications – Rack	42U Enclosure with Preconfigured steel cabinet, 19 inch rack mount x 36" deep, with front perforated door, perforated side doors , vertical and horizontal power and cable manager, ceiling mounted redundant Dual Fan assembly with required nos. of rack trays and accessories. The Rack should have integrated redundant power supply assembly with required electrical earthing. The rack should be castor wheel mounted with wheel locking system. The rack should have easy backplane access for operation and maintenance.
2	KVM switch	Integrated 8 ports KVM Console and Switch with 104 Keyboard, Optical mouse, Folded / re-tractable 19" TFT monitor.
3	Warranty	5 years 24x7 support

2. Server Specifications -Web & Application servers (One each):- 2 no. of Servers:

Bidder may propose a solution with server virtualization on each server, i.e., each physical server may have minimum two virtual servers (having Virtual Application Server and Virtual Web Server). The Virtual application servers & Virtual Web Servers on each physical server should have clustering with each other to have server redundancy between Web & Application servers. Each virtual server should have 1 Processor and 128 GB RAM. All necessary H/W, cables, S/W or any other item required for such virtualization needs to be supplied by the bidder.

Sl. No	Component	Specifications
1	Processor	Minimum 2 Processor X 8Core latest series/generation 64-bit x86 processors with clock speed of 2.6 GHz or higher
2	Memory slots	At least 24 DIMMS supporting ECC DDR4 RAM
3	Primary Memory	Minimum 256 GB DDR4 Registered (RDIMM) with highest frequency as applicable in the quoted model to be offered per processor. Minimum eight slots should be kept free.
4	Memory expandable up to	Minimum up to 1 TB
5	HDD	3 x 600 GB SAS HDDs Or Higher, speed 15K RPM.

6	HDD bays	4 or more
7	Internal HDD controller	RAID 5 Controller. Raid Controller card should be with 4GB Cache
8	Network controller	Integrated 4 Ethernet Ports of minimum 10/100/1000 Mbps without consuming any PCI slot. 4 nos USB 3.0 compliant ports.
9	L3 Cache	Total Cache to be minimum 20 MB per processor socket
10	Chipset	Latest Generation Server Class Mother Board based on associated chipset supporting the above processor. Same OEM make as that of Processor
11	Graphics	Integrated Graphics with at least 8MB Video Memory
12	I/O slots	6 PCI/ PCIe x8/x16 slots support. 1 Serial port, 1 dedicated 1Gbps Management port other than the network port, 2 Graphics port support.
13	Systems Management Processor	Dedicated system Management processor/controller to manage health of server. LEDs for Power on/System Health, HDD activity etc.
14	Power supply	Redundant Power Supply to sustain above configuration with Hot plugging. Power Supply with 90% efficiency for better utilization.
15	Form factor	19" rack mountable with rack mounting accessories
16	Cable & Accessories	All required Power cables and required accessories are to be provided. Cables required for redundancy are also to be provided.
17	Optical drive	DVD RW Drive 22x or Higher
18	Security	Power-on password / administrator password / unattended boot /selectable boot
19	OS Compatibility	Support for Windows Server 2016 latest standard/ data Center Edition 64 bit / Red Hat Enterprise Linux latest edition 64 bit. (The OS should be compatible with the OEM products to be deployed on the server).
20	Warranty	5 years 24x7 support with comprehensive onsite warranty for all components
21	Support	In case of any fault occurs in the hardware then you must provide support to rectify that faulty part and if required to reload the operating system after modification of any hardware components then you must load operating systems in the systems. For the quoted product, support should be available for minimum Five (5) years.
22	Compliance / Certification	For OEM- ISO 9001 and 14001. For Quoted Model- UL/CSA, FCC or Equivalents, RoHs, CE, Energy Star, ACPI, IPMI etc.
23	Host interface and others	Fiber Channel Adapter having 2 x minimum 8Gbps ports.

24	Driver/Software utility	Provide all necessary driver CDs and manuals for the server
25	GPU Card	AMD FirePro™ S7100X Server GPU card or NVIDIAQuadro K5200 server GPU card or equivalent are to be supplied.

3. Database servers- 2 nos Servers in high availability clustering

Sl. No	Component	Specifications
1	Processor	Minimum 2 X 8 Core latest series/generation 64-bit x86 processors with clock speed of 3.4 GHz or higher
2	Memory slots	At least 24 DIMMS supporting ECC DDR4 RAM
3	Primary Memory	Minimum 256 GB DDR4 Registered (RDIMM) with highest frequency as applicable in the quoted model to be offered per processor. Minimum eight slots should be kept free.
4	Primary memory expandable upto	Minimum upto1 TB
5	HDD	3 x 600 GB SAS HDDs Or Higher, speed 15K RPM.
6	HDD bays	4 or more
7	Internal HDD controller	RAID 5 Controller. Raid Controller card should be with 4GB Cache
8	Network controller	Integrated 4 Ethernet Ports of minimum 10/100/1000 Mbps without consuming any PCI slot. 4 nos USB 3.0 compliant ports.
9	L3 Cache	Total Cache to be minimum 20 MB per processor socket
10	Chipset	Latest Generation Server Class Mother Board based on associated chipset supporting the above processor. Same OEM make as that of Processor
11	Graphics	Integrated Graphics with at least 8MB Video Memory
12	I/O slots	6 PCI/ PCIe x8/x16 slots support. 1 Serial port, 1 dedicated 1Gbps Management port other than the network port, 2 Graphics port support.
13	Systems Management Processor	Dedicated system Management processor/controller to manage health of server. LEDs for Power on/System Health, HDD activity etc.
14	Power supply	Redundant Power Supply to sustain above configuration with Hot plugging. Power Supply with 90% efficiency for better utilization.
15	Form factor	19" rack mountable with rack mounting accessories
16	Cable & Accessories	All required Power cables and required accessories are to be provided. Cables required for redundancy are also to be provided.
17	Optical drive	DVD RW Drive 22x or Higher
18	Security	Power-on password / administrator password / unattended boot /selectable boot

19	OS Compatibility	Support for Windows Server 2016 latest standard/ Data Center Edition 64 bit / Red Hat Enterprise Linux latest edition 64 bit. **(The OS should be compatible with the OEM products to be deployed on the server).**
20	Warranty	5 years 24x7 support with comprehensive onsite warranty for all components
21	Support	In case of any fault occurs in the hardware then you must provide support to rectify that faulty part and if required to reload the operating system after modification of any hardware components then you must load operating systems in the systems. For the quoted product, support should be available for minimum Five (5) years.
22	Compliance / Certification	For OEM- ISO 9001 and 14001. For Quoted Model- UL/CSA, FCC or Equivalents, RoHs, CE, Energy Star, ACPI, IPMI etc.
23	Host interface and others	Fiber Channel Adapter having 2 x minimum 8Gbps ports.
24	Driver/Software utility	Provide all necessary driver CDs and manuals for the server
25	GPU Card	AMD FirePro™ S7100X Server GPU card or NVIDIA Quadro K5200 server GPU card or equivalent are to be supplied

4. Security server & Backup server - 1no. of Server

Sl. No	Component	Specifications
1	Processor	Minimum 2 X 8 Core latest series/generation 64-bit x86 processors with clock speed of 2.1 GHz or higher
2	Memory slots	At least 24 DIMMS supporting ECC DDR4 RAM
3	Primary Memory	Minimum 64 GB DDR4 Registered (RDIMM) with highest frequency as applicable in the quoted model to be offered per processor. Minimum eight slots should be kept free.
4	Primary memory expandable upto	Minimum upto 512 GB
5	HDD	3 x 600 GB SAS HDDs Or Higher, speed 15K RPM.
6	HDD bays	4 or more
7	Internal HDD controller	RAID 5 Controller. Raid Controller card should be with 4GB Cache
8	Network controller	Integrated 4 Ethernet Ports of minimum 10/100/1000 Mbps without consuming any PCI slot. 4 nos USB 3.0 compliant ports.
9	L3 Cache	Total Cache to be minimum 20 MB per processor socket
10	Chipset	Latest Generation Server Class Mother Board based on associated chipset supporting the above processor. Same OEM make as that of Processor

11	Graphics	Integrated Graphics with at least 8MB Video Memory
12	I/O slots	2 PCI/ PCIe x8/x16 slots support. 1 Serial port, 1 dedicated 1Gbps Management port other than the network port, 2 Graphics port support.
13	Systems Management Processor	Dedicated system Management processor/controller to manage health of server. LEDs for Power on/System Health, HDD activity etc.
14	Power supply	Redundant Power Supply to sustain above configuration with Hot plugging. Power Supply with 90% efficiency for better utilization.
15	Form factor	19" rack mountable with rack mounting accessories
16	Cable & Accessories	All required Power cables and required accessories are to be provided. Cables required for redundancy are also to be provided.
17	Optical drive	DVD RW Drive 8x or Higher
18	Security	Power-on password / administrator password / unattended boot /selectable boot / unattended start mode
19	OS Compatibility	Support for Windows Server 2016 latest edition 64 bit / Red Hat Enterprise Linux latest edition 64 bit. (The OS should be compatible with the OEM products to be deployed on the server).
20	Warranty	5 years 24x7 support with comprehensive onsite warranty for all components
21	Support	In case of any fault occurs in the hardware then you must provide support to rectify that faulty part and if required to reload the operating system after modification of any hardware components then you must load operating systems in the systems. For the quoted product, support should be available for minimum Five (5) years.
22	Compliance / Certification	For OEM- ISO 9001 and 14001. For Quoted Model- UL/CSA, FCC or Equivalents, RoHs, CE, Energy Star, ACPI, IPMI etc.
23	Host interface and others	Fiber Channel Adapter having 2 x minimum 8Gbps ports.
24	Driver/Software utility	Provide all necessary driver CDs and manuals for the server

Please Note:

1. All the servers should be from same OEM.
2. OEM should be in Gartners leaders quadrant for modular servers
3. All the servers should be supported with back to back 5 years 24x7 comprehensive onsite warranty for all components from OEM.
4. All necessary clustering software, virtualization software, Operating System for the servers must be supplied by the bidder.

5. All necessary hardware for installation of the servers in rack (server rails, power chords etc) must be supplied by the bidder.
6. Rack mounted console with keyboard &mouse for management of servers must be provided by the bidder.
7. 10 nos. of LTO4 tape of 800 GB capacity for backup is to be provided by the bidder.

5. Top of the Rack Switch – 2 Qty :

Specifications
Switch Throughput
130 Gbps maximum forwarding bandwidth at Layer 2 and Layer 3 switching fabric
forwarding rate of 100 millions of packets per second (mpps) for 64-byte packets
Forwarding rate for 64-byte packets: more than 100 Mpps
The switch should have 48 Ethernet 10/100/1000 ports and 2 – 10 Gigabit capable slots
256 MB DRAM Flash memory
Should support at least 45,000 MAC address entries
Configurable up to 30,000 unicast routes
Configurable up to 1000 IGMP groups and multicast routes
Configurable Maximum Transmission Unit (MTU) of up to 9000bytes,with a maximum Ethernet frame size of 9018 Bytes (Jumbo frames) for bridging of MPLS tagged frames
Protocol support – Some of these features can also be available by software upgrade on the same switch hardware
Support for all commonly deployed and industry standard IP unicast routing protocols (RIPv1, RIPv2, OSPF, IGRP & static Routing) for load balancing and constructing scalable LANs. This can also be through switch software upgrade
IPv6 routing support in hardware for maximum performance.
Inter-VLAN IP routing for full Layer 3 routing between two or more VLANs.
Equal cost routing for load balancing and redundancy.
Protocol-Independent Multicast (PIM) for IP multicast routing within a network that enables the network to receive the multicast feed requested and for switches not participating in the multicast to be pruned—support for PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), and PIM sparse-dense mode and PIM Bi-Directional.
Distance Vector Multicast Routing Protocol (DVMRP) tunneling for interconnecting two multicast-enabled networks across non-multicast networks.
Should be provided redundant fail-safe routing topologies.
QoS support -Some of these features can also be available by software upgrade on the same switch hardware
802.1p class of service (CoS) configurations
DiffServ Code Point field (DSCP) classification via marking and reclassification on a per packet basis using source/destination IP address, source/destination MAC address, or Layer 4 TCP/UDP port number.

Control plane and data plane quality of service ACLs on all ports to ensure proper marking on a per packet basis.
Four egress queues per port supported in hardware to enable differentiated management of up to four types of traffic.
Weighted Round Robin (WRR) scheduling to ensure differential prioritization of packet flows by intelligently servicing the egress queues
Strict priority queuing to guarantee that the highest priority packets will always get serviced ahead of all other traffic.
No performance penalty for highly granular quality of service functionality
Committed Information Rate (CIR) functionality allows bandwidth to be guaranteed in increments as low as 8 Kbps.
Rate-limiting based on source/destination IP address, source/destination MAC address, or Layer 4 TCP/UDP information—or any combination of these fields— using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps
Rate-limiting based on source/destination IP address, source/destination MAC address, or Layer 4 TCP/UDP information—or any combination of these fields— using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps
At least 8 aggregate or individual ingress policers and 8 aggregate egress policers on each 10/100 port
At least 128 aggregate or individual ingress policers and 8 aggregate egress policers on each Gigabit Ethernet port
Manageability
Built in Web based management support
Dynamic Host Configuration Protocol (DHCP) auto-configuration of multiple switches through a boot server eases switch deployment.
Shall provide Simple Network Management Protocol (SNMP) Version 1 and Version 2c and ver3 with Telnet support
Shall Provide configuration of end-to-end QoS policies through GUI tool
Up to 1005 VLANs per switch or stack and up to 128 spanning-tree instances per switch
4000 VLAN IDs.
Should provide for IGMP snooping for fast client joins and leaves of multicast streams
Shall provide for Embedded Remote Monitoring (RMON) software agent supporting four RMON groups (History, Statistics, Alarms and Events) for enhanced traffic management, monitoring, and analysis
Web browser setup utility to allow for one-click initialization for IP addresses and passwords.
Shall provide support for TFTP (Trivial File transfer protocol) for the easy software upgrades on the network
Auto-configuration for ease of deployment of switches in the network by automatically configuring multiple switches across a network via a boot server.
Auto-sensing on each non- 10 Gigabit port detects the speed of the attached device and automatically configures the port for 10-, 100-, or 1000-Mbps operation, easing the deployment of the switch in mixed 10, 100, and 1000BaseT environments.

Auto-negotiating on all ports automatically selects half- or full-duplex transmission mode to optimize bandwidth.
High availability and resiliency
Shall provide for Switch level redundancy with HSRP support
Should have internal/external redundant power supply
IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) provides rapid spanning-tree convergence independent of spanning-tree timers and benefit of distributed processing.
Provides unidirectional link detection (UDLD) for detecting and disabling unidirectional links on fiber-optic interfaces caused by incorrect fiber-optic wiring or port faults.
Port Aggregation Protocol (PAgP) with support for aggregating up to 8GE OR 2 10 Gigabit links
Security Features supported
IEEE 802.1x for dynamic port-based security.
Security VLAN ACLs (VACLs) on all VLANs to prevent unauthorized data flows to be bridged within VLANs.
1000 access control entries (ACEs) should be supported.
Standard and extended IP security Router ACLs (RACLs) for defining security policies on routed interfaces for control plane and data plane traffic—
Time-based ACLs allow the implementation of security settings during specific periods of the day.
Private VLAN edge provides security and isolation between ports on a switch, ensuring that voice traffic travels directly from its entry point to the aggregation device through a virtual path and cannot be directed to a different port.
TACACS+ and RADIUS (planned future software support) authentication to enable centralized control of the switch and restrict unauthorized users from altering the configuration.
MAC-based port-level security prevents unauthorized stations from accessing the switch (planned future software support).
Multilevel security on console access prevents unauthorized users from altering the Switch configuration.
The user-selectable address-learning mode simplifies configuration and enhances security.
Bridge protocol data unit (BPDU) guard on every port shuts down Spanning-Tree Protocol on select interfaces when BPDUs are received to avoid accidental topology loops.
Spanning-tree root guard (STRG) prevents edge devices not in the network administrator's control from becoming Spanning-Tree Protocol root nodes

6. OEM Make CAT 6a/CAT 7 (5 Meters) - 12 no.
FC Cable LC-LC (10 Meters) - 8 no.

B. Software Specification:

1. RDBMS Specification:

Bidders are requested to bid with a RDBMS which is capable of storing spatial data and publish OGC web services. The System Integrator will be responsible for providing support for the RDBMS. The proposed RDBMS should support requisite geospatial storage, processing needs and applications. The indicative/ desired specifications are given below:

a. **Spatial:**

- ❖ The RDBMS must provide a spatial option that can support advanced spatial features to support GIS solutions.
- ❖ Should provide native storage, querying, and retrieval for 3-dimensional (3D) data including points, lines, surfaces, triangulated irregular networks (TINs - an alternative to rasters).
- ❖ Should provide Web services platform to access, incorporate, publish, and deploy geospatial services, such as for routing, geocoding, business directory, catalog, geospatial feature, and mapping
- ❖ Ability to perform precise length, area, and distance calculations, taking into account curvature of the earth.
- ❖ Server-based spatial analysis capabilities essential for business intelligence applications.
- ❖ RDBMS architecture should include partitioning.
- ❖ Spatial indexes and index partitions can be created.
- ❖ RDBMS must support the OGC Geographic Markup Language (GML).
- ❖ RDBMS should support for geographic objects allowing location query to be run in SQL.

b. **Database:**
The RDBMS must have the capability to allow access to a single database from multiple servers on a cluster, insulating both applications and database users from server failures, if required. The RDBMS should be able to utilise ETL tool for integration requirements. The RDBMS should support all standard data types. It should have capability of efficient concurrency, performance, reliability, disaster recovery, security, extensibility etc.

SI should quote & provide OEM's authorization letter for the following proprietary Software:

2. Specifications for Back-up software:
Back-up software compatible with SDC facility (Commvault) license for Windows Servers – 2 numbers

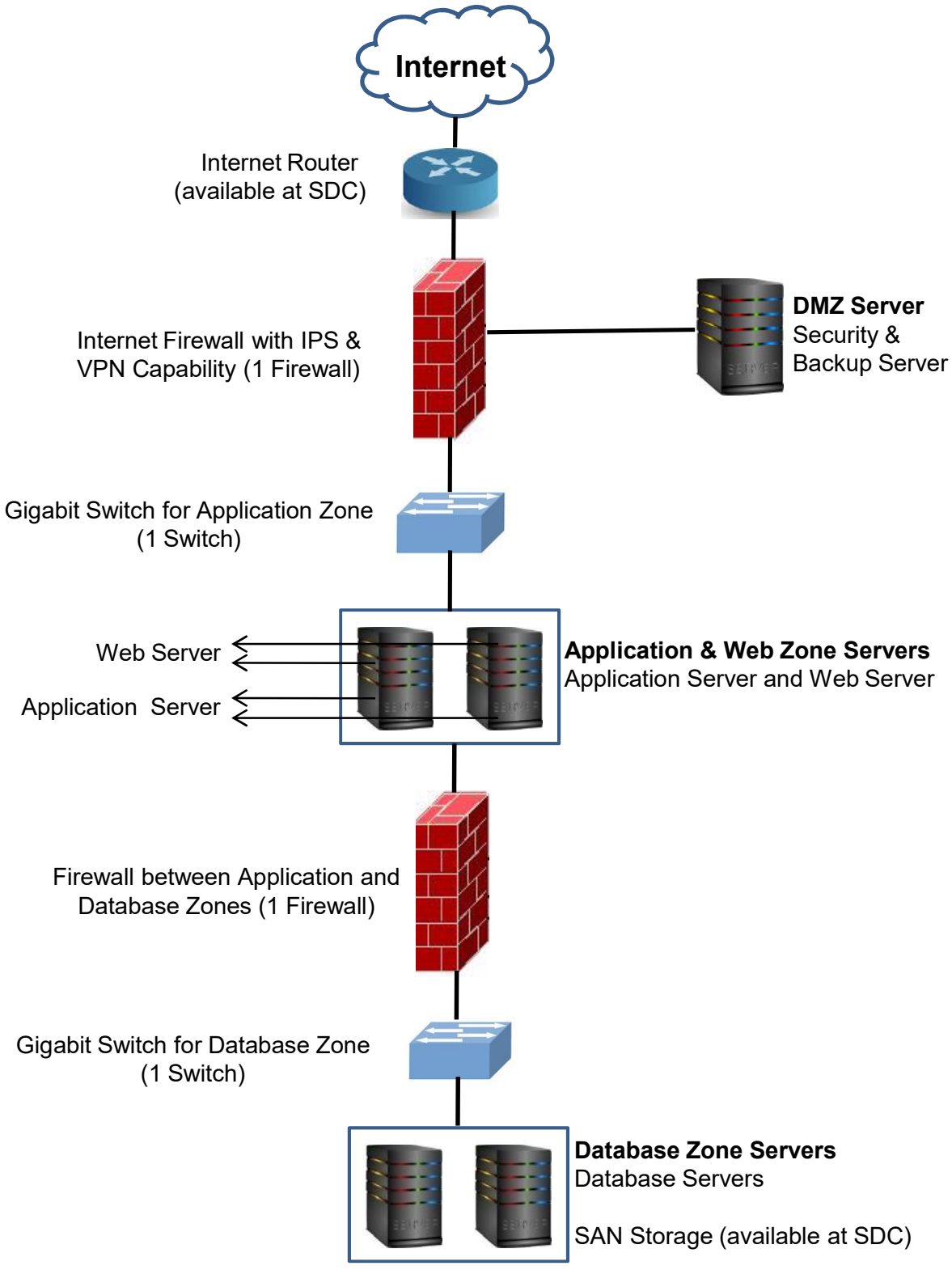
3. Operating system:
Windows 2016 Server datacenter edition / Redhat Enterprise Linux OS -64 Bit with Hypervisor and unlimited Virtual Machine capability as per the server count

4. Antivirus
Required antivirus for all servers for entire project period is to be provided.

5. GIS Software for SDI Development
The license of proposed OGC certified GIS server software should be compatible with the Hardware specifications defined in the RFP. In addition, one SDK licence is also to be provided.

Sl.No.	Compliance - Specifications
1	The Proposed solution must be compliant to OGC Catalogue Service Implementation Specification, Version 2.0.2, core + compliance alternative. The bidders must submit an OGC issued Compliance Certificate along with their technical bid to comply
2	The Proposed solution must be compliant to OGC Web Coverage Service Implementation Specification, Version 1.0.0, The bidders must submit an OGC issued Compliance Certificate along with their technical bid to comply
3	The Proposed solution must be compliant to OGC Web Feature Service Implementation Specification, Version 1.1.0, core + compliance alternative, The bidders must submit an OGC issued Compliance Certificate along with their technical bid to comply
4	The Proposed solution must be compliant to OGC Web Map Service Implementation Specification, Version 1.3.0, The bidders must submit an OGC issued Compliance Certificate along with their technical bid to comply
5	The proposed solution should have the capability for automatically harvesting metadata, foot prints, and thumbnails. This metadata should be complaint to OGC-CSW.
6	The proposed Solution should be capable of scheduling metadata harvesting mechanism so as to reduce administrative tasks.
7	There should be support for coordinate transforms and user definable datum support based on EPSG. An administrator can create and add custom coordinate system to this system.
11	The license of proposed GIS server software should be compatible with the Hardware specifications defined in the RFP.

Suggested WBSSDI Network Diagram



SECTION 6

TECHNICAL PROPOSAL – STANDARD FORMS

Section 6

Technical Proposal – Standard Forms

Form 6A	:	Technical Proposal Submission Form
Form 6B	:	Firm's references
Form 6C	:	Comments and suggestions of Bidders on the Terms of Reference and on Data, Services and Facilities to be provided by WBSCST
Form 6D	:	Description of Methodology and Work Plan for Performing the Assignment Form
Form 6E	:	Team Composition and Task Assignment Form
Form 6F	:	Curriculum Vitae (CV) for Proposed Professional Staff Form
Form 6G	:	Time Schedule for Professional Personnel
Form 6H	:	Unpriced BOQ
Form 6I	:	Work Schedule

Form 6A

Technical Proposal Submission Form

To:
The Joint Secretary
Department of Higher Education, Science and Technology and Biotechnology, Govt. of West Bengal,
Salt Lake, Kolkata – 700091
Ph: 033 2359 6616, 2569 3705/12/04: Fax 033 2334 2969

Dear Sir,
We, the undersigned, offer to provide the consulting services for development of Geo Portal in accordance with your Request for Proposal dated [*Insert Date*] and our Proposal. We are hereby submitting our Proposal, which includes this Technical Proposal, and a Financial Proposal sealed under a separate envelope[1].
We are submitting our Proposal in association with: [*Insert a list with full name and address of each associated Bidder*] (strike out if not applicable)

We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

If negotiations are held during the period of validity of the Proposal, i.e., before the date indicated in Paragraph Reference 1.12 of the Data Sheet, we undertake to negotiate on the basis of the proposed staff. Our Proposal is binding upon us and subject to the modifications resulting from Contract negotiations.

We undertake, if our Proposal is accepted, to initiate the consulting services related to the assignment not later than the date indicated in Paragraph Reference 7.2 of the Data Sheet.
We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm: Address:

FORM 6B

Firm's References

Relevant Services Carried Out in the Last Five Years That Best Illustrate Qualifications

Using the format below, provide information on each assignment for which your firm/entity, either individually as a corporate entity or as one of the major companies within an association, was legally contracted.

<table>
<tr><td colspan="2">Assignment Name:</td><td>Country:</td></tr>
<tr><td colspan="2">Location within Country:</td><td>Professional Staff Provided by Your Firm/Entity(profiles):</td></tr>
<tr><td colspan="2">Name of Client:</td><td>No. of Staff:</td></tr>
<tr><td colspan="2">Address:</td><td>No. of Staff-Months; Duration of Assignment:</td></tr>
<tr><td>Start Date (Month/Year):</td><td>Completion Date (Month/Year):</td><td>Approx. Value of Services (in Current INR):</td></tr>
<tr><td colspan="2">Name of Associated Bidders, If Any:</td><td>No. of Months of Professional Staff Provided by Associated Bidders:</td></tr>
<tr><td colspan="3">Name of Senior Staff (Project Director/Coordinator, Team Leader) Involved and Functions Performed:</td></tr>
<tr><td colspan="3">Narrative Description of Project:</td></tr>
<tr><td colspan="3">Description of Actual Services Provided by Your Firm / Staff:</td></tr>
<tr><td colspan="3">Firm's Name:</td></tr>
</table>

FORM 6C

COMMENTS AND SUGGESTIONS OF BIDDERS ON THE TERMS OF REFERENCE AND ON DATA, SERVICES AND FACILITIES TO BE PROVIDED BY THE CLIENT

On the Terms of Reference:

1.

2.

3.

4.

5.

On the data, services, and facilities to be provided by the Client:

1.

2.

3.

4.

5.

FORM 6D

DESCRIPTION OF THE METHODOLOGY AND WORK PLAN FOR PERFORMING THE ASSIGNMENT

Sl no.	Work item (s) as per the Scope of Work	Deliverable(s)	Activity	Duration in days	Weeks in the form of bar chart								
					1	2	3	4	5	6	7	8	9
1													
2													
3													

Signature of the Authorized Representative (Title, Name, Address)

FORM 6E

TEAM COMPOSITION AND TASK ASSIGNMENTS

1. Technical/Managerial Staff		
Name	Position	Task

2. Support Staff		
Name	Position	Task

FORM 6F

CURRICULUM VITAE (CV) FOR PROPOSED PROFESSIONAL STAFF

Proposed Position:

Name of Firm:

Name of Staff:

Profession:

Date of Birth:

Years with Firm/Entity:

Nationality: Membership in Professional Societies:

Detailed Tasks Assigned:

Key Qualifications:

[Give an outline of staff member's experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use about half a page.]

Education:
[Summarize college/university and other specialized education of staff member, giving names of schools, dates attended, and degrees obtained. Use about one quarter of a page.]

Employment Record:
[Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, titles of positions held, and locations of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate. Use about two pages.]

Languages:
[For each language indicate proficiency: excellent, good, fair, or poor in speaking, reading, and writing.]

Certification: I, the undersigned, certify that to the best of my knowledge and belief, these data

correctly describe me, my qualifications, and my experience.

Signature of staff member and authorized representative of the firm] Day/Month/Year

Full name of staff member:_____

Full name of authorized representative & Sign: _____

FORM 6G

Time Schedule for Professional Personnel

TIME SCHEDULE FOR PROFESSIONAL PERSONNEL

Full-time: _____ Part-time: _____
Deliverable/ Reports Due: _____
Activities Duration: _____
Signature:___
(Authorized representative)

Full Name:___
Title:__
Address:_____

			Week / Months (in the Form of a Bar Chart)												
Name	Position	Deliverables/Reports Due /Activities	1	2	3	4	5	6	7	8	9	10	11	12	Number of Months
															Subtotal (1)
															Subtotal (2)
															Subtotal (3)
															Subtotal (4)

Form 6H

Bidders are requested to provide a detail unpriced BOQ mandatorily in the technical proposals. The format is given below.

Unpriced BOQ

	Description	Make & Model	Quantity	Units
1	Needs Assessment Report containing Requirement analysis		1	Lump sum
2	Preparation of real world object catalogue		1	Lump sum
3	Conceptual Data Model development		1	Lump sum
4	Centralized database		1	Lump sum
5	Installation, customization, integration of the hardware, software in order to implement the 'Geo-Portal and clearing house', provision of webservices and Custom Applications Development		1	Lump sum
6	Publishing/ migrating data, metadata in the Geo-portal/ Data Clearinghouse		1	Lump sum
7	Comprehensive security solution fully integrated with geoportal		1	Lump sum
8	Testing of geoportal/ database/ services and User acceptance testing followed by Security audit		1	Lump sum
9	Final deployment and Go-live of the complete system and training		1	Lump sum
10	Handholding		1	Lump sum
11	Integrated Rack with accessories		1	Number
12	Application Server		1	Number
13	Web Server		1	Number
14	Database Servers		2	Number
15	Security server & Backup server		1	Number
16	Top of the Rack Switch		2	Number
17	OEM Make CAT 6a/CAT 7 (5 Metres)		12	Number
18	FC Cable LC-LC (10 Metres)		8	Number
19	Operating System		5	Number
20	RDBMS		1	Number
21	GIS Software for SDI Development		1	Number
22	Backup Software for Windows Servers		2	Number
23	Antivirus software		5	Number
24	AMC for the entire System including HW, SW, Developed Application, training etc. for five years		5	Year
25	Any other Software, Hardware etc (Please specify in the unpriced BOQ of the Technical Bid)		1	Lump sum

Form 6I

WORK (ACTIVITY) SCHEDULE

A.

	[1st, 2nd, etc. are weeks / months from the start of assignment.]												
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	
Activity (Work)													
_____													
_____													
_____													
_____													

B. Completion and Submission of Deliverables/ Reports

Deliverables/ Reports	Date
1. Preparation/ Inception	
2. Interim Progress (a) First Status Report (b) Second Status Report	
3. Draft Report version	
4. Final Report version	

SECTION 7

FINANCIAL PROPOSAL – STANDARD FORMS

Section 7

Format for Financial Proposal

BOQ

Setting up of a Geoportal and a Clearinghouse for the West Bengal State Data Infrastructure:

	Description	Quantity	Units		
1	Needs Assessment Report containing Requirement analysis	1	Lump sum		
2	Preparation of real world object catalogue	1	Lump sum		
3	Conceptual Data Model development	1	Lump sum		
4	Centralized database	1	Lump sum		
5	Installation, customization, integration of the hardware, software in order to implement the 'Geo-Portal and clearing house', provision of webservices and Custom Applications Development	1	Lump sum		
6	Publishing/ migrating data, metadata in the Geo-portal/ Data Clearinghouse	1	Lump sum		
7	Comprehensive security solution fully integrated with geoportal	1	Lump sum		
8	Testing of geoportal/ database/ services and User acceptance testing followed by Security audit	1	Lump sum		
9	Final deployment and Go-live of the complete system and training	1	Lump sum		
10	Handholding	1	Lump sum		
11	Integrated Rack with accessories	1	Number		
12	Application Server	1	Number		
13	Web Server	1	Number		
14	Database Servers	2	Number		
15	Security server & Backup server	1	Number		
16	Top of the Rack Switch	2	Number		
17	OEM Make CAT 6a/CAT 7 (5 Metres)	12	Number		
18	FC Cable LC-LC (10 Metres)	8	Number		
19	Operating System	5	Number		
22	RDBMS	1	Number		
21	GIS Software for SDI Development	1	Number		
22	Backup Software for Windows Servers	2	Number		
23	Antivirus software	5	Number		
24	AMC for the entire System including HW, SW, Developed Application, training etc. for five years	5	Year		
25	Any other Software, Hardware etc (Please specify in the unpriced BOQ of the Technical Bid)	1	Lump sum		

NOTE: - (i) No cost will be borne by WBSCST in case a job is repeated or rejected or, if a job is repeated, it will be done at the own cost of the vendors.

(ii) The cost figure will not be subjected to any escalation and the price shall remain valid for a period of 12 months

(iii) Technical and Financial bids are to be given in online only through e-Tender portal. Hardcopy proposals will be summarily rejected.

SECTION 8

STANDARD FORM OF CONTRACT INCLUDING TERMS OF PAYMENT

Section 8

Standard Form of Contract including Terms of Payment

Contents

I. Form of Contract.....
II. General Conditions of Contract.....
1.0. General Provisions.....
1.1. Definitions.....
1.2. Law Governing Contract.....
1.3. Language.....
1.4. Notices.....
1.5. Location.....
1.6. Authority of Member in Charge.....
1.7. Authorized Representatives.....
1.8. Taxes and Duties.....
1.9 Fraud and Corruption.....

2. Commencement, Completion, Modification and Termination of Contract.....
2.1. Effectiveness of Contract.....
2.2. Commencement of Services.....
2.3. Expiration of Contract.....
2.4. Modifications or Variations.....
2.5. Force Majeure.....
2.6. Termination.....

3. Obligations of the Bidder.....
3.1. General.....
3.2. Conflict of Interests.....
3.3. Confidentiality.....
3.4. Insurance to be Taken Out by the Bidder.....
3.5. Bidder's Actions Requiring Client's Prior Approval.....
3.6. Reporting Obligations.....
3.7. Documents Prepared by the Bidder to be the Property of the Client .....
3.8. Accounting, Inspection and Auditing.....

4. Bidder's Personnel.....
4.1. Description of Personnel.....
4.2. Removal and/or Replacement of Personnel.....

5. Obligations of the Client.....
5.1. Assistance and Exemptions.....
5.2. Changes in the Applicable Law Related to Taxes and Duties.....
5.3. Services and Facilities.....

6. Payments to the Bidder.....
6.1. Lump-Sum Payment.....
6.2. Contract Price.....
6.3. Payment for Additional Services.....

6.4. Terms and Conditions of Payment.....
6.5. Interest on Delayed Payments.....

7. Good Faith.....
7.1. Good Faith.....

8. Settlement of Disputes.....
8.1. Amicable Settlement.....
8.2. Dispute Resolution.....

III. Special Conditions of Contract.....

IV. Appendices.....
Appendix A – Description of Services.....
Appendix B - Reporting Requirements.....
Appendix C - Key Personnel and Sub-Bidders.....
Appendix D - Breakdown of Contract Price in Local Currency.....
Appendix E - Services and Facilities Provided by the Client.....
Appendix F - Form of Advance Payments Guarantee.....

CONTRACT FOR

Setting up of a Geo-portal and a Data Clearinghouse for
The West Bengal State Spatial Data Infrastructure
(WBSSDI)

BIDDERS SERVICES - Lump-Sum Contract

between

West Bengal State Council of Science & Technology (WBSCST)
Department of Higher Education,
Science and Technology and Biotechnology,
Government of West Bengal, (S & T Branch) Bikash Bhavan (4th Floor),
Salt Lake, Kolkata – 700 091

[Name of the Bidder]

Dated:

I. Form of Contract :

This CONTRACT (hereinafter called the "Contract") is made the [day] day of the month of [month], [year], between, on the one hand, West Bengal State Council of Science & Technology (WBSCST), a Council registered under the Societies Registration Act (21 of 1860) having its office at Bikash Bhavan, North Block (4th Floor), Salt Lake, Kolkata-700 091 (hereinafter called the WBSCST which expression shall include its successors and assigns) of the one part. and, on the other hand, [name of Bidder] (hereinafter called the "Bidder").

[Note: If the Bidder consists of more than one entity, the above should be partially amended to read as follows: and, on the other hand, a joint venture/consortium/association consisting of the following entities, each of which will be jointly and severally liable to the Client for all the Bidder's obligations under this Contract, namely, [name of Bidder] and [name of Bidder] (hereinafter called the "Bidder").] WHEREAS

NOW THEREFORE the parties hereto hereby agree as follows:

1. The following documents attached hereto shall be deemed to form an integral part of this Contract:
   (a) The General Conditions of Contract;

   (b) The Special Conditions of Contract;

   (c) The following Appendices: [Note: If any of these Appendices are not used, the words "Not Used" should be inserted below next to the title of the Appendix]
      (i) the WBSCST has requested the Bidder to provide certain consulting services as defined in this Contract (hereinafter called the "Services");
      (ii) the Bidder, having represented to the WBSCST that it has the required professional skills, and personnel and technical resources, has agreed to provide the Services on the terms and conditions set forth in this Contract;

      Appendix A: Description of Services
      Appendix B: Reporting Requirements
      Appendix C: Key Personnel and Sub-Bidders
      Appendix D: Breakdown of Contract Price in Local Currency
      Appendix E: Services and Facilities Provided by the Client
      Appendix F: Form of Advance Payment Guarantee

2. The mutual rights and obligations of the WBSCST and the Bidder shall be as set forth in the Contract, in particular:
      (a) the Bidders shall carry out the Services in accordance with the provisions of the Contract; and
      (b) the WBSCST shall make payments to the Bidders in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

For and on behalf of West Bengal State Council for Science & Technology (WBSCST), Department of Higher Education, Science and Technology and Biotechnology, Kolkata – 700 091

For and on behalf of *[name of Bidder]* [Authorized Representative] [Note: If the Bidder consists of more than one entity, all these entities should appear as signatories, e.g., in the following manner:]

For and on behalf of each of the Members of the Bidder

[Name of member] [Authorized Representative] [Name of member] [Authorized Representative]

II. General Conditions of Contract:

1. GENERAL PROVISIONS

1.1 Law Governing Contract:
This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law presently prevailing in the State of West Bengal and in India.

1.2 Language:
This Contract has been executed in the language specified in the SC, which shall be the binding and controlling language for all matters relating to the meaning or interpretation of this Contract.

1.3 Notices:

1.3.1 Any notice, request or consent required or permitted to be given or made pursuant to this Contract shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent to such Party at the address specified in the SC.

1.3.2 A Party may change its address for notice hereunder by giving the other Party notice in writing of such change to the address specified in the SC.

1.4 Location :
The Services shall be performed at such locations as are specified in Appendix A hereto and, where the location of a particular task is not so specified, at such locations as the WBSCST may approve.

1.5 Authority of Member in Charge :
In case the Bidder consists of a joint venture/ consortium/ association of more than one entity, the Members hereby authorize the entity specified in the SC to act on their behalf in exercising all the Bidder's rights and obligations towards the WBSCST under this Contract, including without limitation the receiving of instructions and payments from the WBSCST and the work of authorized member belonging from that joint venture/ consortium/ association will bind all its fellow members of that joint venture/ consortium/ association so far as the contract with the WBSCST is concerned.

1.6 Authorized Representatives :
Any action required or permitted to be taken, and any document required or permitted to be executed under this Contract by the WBSCST or the Bidder may be taken or executed by the officials specified in the SC.

1.7 Taxes and Duties:
The Bidder and their Personnel shall pay such taxes, duties, fees, and other impositions levied under the Applicable Law as specified in the SC, the amount of which is deemed to have been included in the Contract Price as necessary expenses and no demand beyond Contract Price can be permitted/ entertained.

1.8 Fraud and Corruption

1.8.1 Definitions:
It is the WBSCST's policy to require that this contract observe the highest standard of ethics during the selection and execution of such contracts. In pursuance of this policy definition for the purpose of this provision, in respect of the terms set forth below are as follows:

(i) “corrupt practice” means the offering, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the selection process or in contract execution;
(ii) “fraudulent practice” means a misrepresentation or omission of facts in order to influence a selection process or the execution of a contract;
(iii) “collusive practices” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Borrower, designed to establish prices at artificial, noncompetitive levels;
(iv) “coercive practices” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract;

1.8.2 Measures to be taken :
WBSCST will have the exclusive right to blacklist, expel or to appoint a new Bidder, including declaring the Bidder ineligible, either indefinitely or for a stated period of time, to be awarded a contract if it at any time determines that the Bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a contract and in that case the decision of WBSCST will be final.

1.9 Insurance:
The SSDI application & infrastructure being provisioned by the bidder shall be insured in all respect. The Goods supplied under the Contract shall be fully insured against loss or damage due to fire, water, theft, etc. incidental to manufacture or acquisition, transportation, storage and delivery for the entire project term as well as for subsequent five years from date of commencement of the project.

2. COMMENCEMENT, COMPLETION, MODIFICATION AND TERMINATION OF CONTRACT

2.1 Effectiveness of Contract:
This Contract shall come into effect on the date the Contract is signed by both Parties or such other later date as may be stated in the SC. The date the Contract comes into effect is defined as the Effective Date.

2.2 Commencement of Services:
The Bidder will be duty bound to provide the Services not later than the number of days after the Effective Date specified in the SC.

2.3 Expiration of Contract:
Unless terminated earlier pursuant to Clause GC 2.5 hereof, this Contract shall expire at the end of such time period after the Effective Date as specified in the SC.

2.4 Modifications or Variations:
Any modification or variation of the terms and conditions of this Contract, including any modification or variation of the scope of the Services, may only be made by new written agreement between the Parties. However, each Party shall give due consideration to any proposals for modification or variation made by the other Party in terms of new agreement, if required.

2.5 Termination

2.5.1 by the WBSCST

The WBSCST may terminate this Contract in case of the occurrence of any of the events specified in paragraphs (a) through (f) of this Clause GC 2.6.1. In such an occurrence the WBSCST shall give a not less than thirty (30) days’ written notice of termination to the Bidder, and sixty (60) days’ in the case of the event referred to in (e).

(a) If the Bidder does not yield to indemnify in case of a failure in the performance of their obligations under the Contract, within thirty (30) days after being notified or within any further period as the WBSCST may have subsequently approved in writing.

(b) If the Bidder is declared insolvent or bankrupt by a court of competent jurisdiction.

(c) If the Bidder, in the judgment of the WBSCST has engaged in corrupt or fraudulent practices in executing the Contract by any way so far as execution of the contract is concerned.

(d) If the WBSCST, in its sole discretion and for any reason whatsoever, decides to terminate this Contract.

(e) If the Bidder fails to comply with any final decision reached as a result of arbitration proceedings pursuant to Clause SC 8.2 hereof.

2.5.2 by the Bidder

The Bidders may terminate this Contract, by not less than thirty (30) days' written notice to the Client, such notice to be given after the occurrence of any of the events specified in paragraphs (a) and (b) of this Clause GC 2.5.2:

(a) If the WBSCST fails to pay any money due to the Bidder pursuant to this Contract and not subject to dispute pursuant to Clause GC 7 hereof within forty five (45) days after receiving written notice from the Bidder that such payment is overdue.

(b) If the WBSCST fails to comply with any final decision reached as a result of arbitration pursuant to Clause GC 8 hereof.

2.5.3 Payment upon Termination of this Contract pursuant to Clauses GC 2.5.1 or GC 2.5.2, the WBSCST shall make the following payments to the Bidder:

(a) payment pursuant to Clause GC 2.5 for Services satisfactorily performed prior to the effective date of termination;

(b) except in the case of termination pursuant to paragraphs (a) through (c), and (e) of Clause GC 2.5.1, reimbursement of any reasonable cost arising out of the prompt and orderly termination of the Contract, including the cost of the return travel of the Personnel and their eligible dependents.

3. OBLIGATIONS OF THE BIDDER

3.1 General

3.1.1 Standard of Performance

The Bidder shall perform the Services and carry out their obligations hereunder with all due diligence, efficiency and economy, in accordance with generally accepted professional standards and practices, and shall observe sound management practices, and employ appropriate technology and safe and effective equipment, machinery, materials and methods. The Bidder shall always act, in respect of any matter relating to this Contract or to the Services, as faithful advisers to the WBSCST, and shall at all times support and safeguard the legitimate interests of WBSCST in any dealings with Sub-Bidders or third Parties.

3.2 Conflict of Interests

The Bidder shall hold the interests of WBSCST as paramount priority without any consideration for future work, and strictly avoid conflict with other assignments or their own corporate interests.

3.2.1 Bidders Not to Benefit from Commissions, Discounts, etc.

The payment of the Bidder pursuant to Clause GC 6 shall constitute the Bidder's only payment in connection with this Contract or the Services, and the Bidder shall not accept for their own benefit any trade commission, discount, or similar payment in connection with activities pursuant to this Contract or to the Services or in the discharge of their obligations under the Contract, and the Bidder shall use their best efforts to ensure that the Personnel, any Sub-Bidders, and agents of either of them similarly shall not receive any such additional payment.

3.2.2 Bidder and Affiliates Not to be Otherwise Interested in Project

The Bidder agrees that, during the term of this Contract and after its termination, the Bidder and any entity affiliated with the Bidder, as well as any Sub-Bidders and any entity affiliated with such Sub-Bidders, shall be disqualified from providing goods, works or services (other than consulting services and goods / equipments specified in the TOR) resulting from or directly related to the Bidder's Services for the preparation or implementation of the project.

3.2.3 Prohibition of Conflicting Activities

The Bidder shall not engage, and shall cause their Personnel as well as their Sub-Bidders and their Personnel not to engage, either directly or indirectly, in any business or professional activities which would conflict with the activities assigned to them under this Contract.

3.3 Confidentiality

Except with the prior written consent of the WBSCST, the Bidder and the Personnel shall not at any time communicate to any person or entity any confidential information acquired in the course of the Services, nor shall the Bidder and the Personnel make public the recommendations formulated in the course of, or as a result of, the Services.

3.4. There are some actions on the Bidder where prior approval from WBSCST is required as a mandatory provision. These actions are:-

(a) entering into a subcontract for the performance of any part of the Services,

(b) appointing such members of the Personnel not listed by name in Appendix C, and

(c) any other action that may be specified in the SC.

3.5. Reporting Obligations

(a) The Bidder shall submit to the WBSCST the reports and documents specified in Appendix B hereto, in the form, numbers and within the time periods set forth in the said Appendix.

(b) Final reports shall be delivered both in soft copies and hard copies.

3.6 Documents Prepared by the Bidder will be the exclusive property of the WBSCST.

(a) All plans, drawings, specifications, designs, reports, other documents and software submitted by the Bidder under this Contract shall become and remain the sole property of the WBSCST, and the Bidder will be duty bound to deliver all such documents to the WBSCST, together with a detailed inventory thereof before expiration on termination of contract.

(b) The Bidder may retain a copy of such documents and software. Restrictions about the future use of these documents, if any, shall be specified in the SC.

3.7 Accounting, Inspection and Auditing the Bidder :

(i) shall keep accurate and systematic accounts and records in respect of the Services hereunder, in accordance with internationally accepted accounting principles duly recognized and in such form and detail as will clearly identify all relevant time changes and costs, and the bases thereof, and

(ii) shall periodically permit the WBSCST or its designated representative and up to two years from the expiration or termination of this Contract, to inspect the same and make copies thereof as well as to have them audited by auditors appointed by the WBSCST or the representatives of the WBSCST, if so required by the WBSCST.

4. BIDDER'S PERSONNEL

4.1 Description of Personnel:

The Bidder shall employ and provide such qualified and experienced Personnel and Sub-Bidders as are required to carry out the Services. The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Bidder's Key Personnel are described in Appendix C. The Key Personnel and Sub-Bidders listed by title as well as by name in Appendix C are hereby approved by the WBSCST.

4.2 Removal and/or Replacement of Personnel :

(a) Except as the WBSCST may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Bidder, such as retirement, death, medical incapacity, among others, it becomes necessary to replace any of the Key Personnel, the Bidder shall provide as a replacement a person of equivalent or better qualifications.

(b) If the WBSCST finds that any of the Personnel have (i) committed serious misconduct or have been charged with having committed a criminal action, or (ii) have reasonable cause to be dissatisfied with the performance of any of the Personnel, then the Bidder shall, after getting written direction from WBSCST specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the WBSCST. (c) The Bidder shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

5. OBLIGATIONS OF THE WBSCST

5.1 Assistance and Exemptions :

The WBSCST shall use its best efforts to ensure that the Government shall provide the Bidder such assistance and exemptions as specified in the SC.

5.2 Change in the Applicable Law Related to Taxes and Duties:

If, after the date of this Contract, there is any change in the Applicable Law with respect to taxes and duties which increases or decreases the cost incurred by the Bidder in performing the Services, then

the remuneration and reimbursable expenses otherwise payable to the Bidder under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made to the amounts referred to in Clauses GC 6.2 (a) or (b), as the case may be.

5.3 Services and Facilities
The WBSCST shall make available free of charge to the Bidder the Services and Facilities listed under Appendix E.

6. PAYMENTS TO THE BIDDER

6.1 Lump Sum Payment
The total payment due to the Bidder shall not exceed the Contract Price which is an all inclusive fixed lump-sum covering all costs required to carry out the Services described in Appendix A. Except as provided in Clause 5.2, the Contract Price may only be increased above the amounts stated in Clause 6.2 if the Parties have agreed to additional payments in accordance with Clause 2.4.

6.2 Contract Price
The price payable in local currency is set forth in the SC.

6.3 Payment for Additional Services:
For the purpose of determining the remuneration due for additional services as may be agreed under Clause 2.4, a breakdown of the lump-sum price is provided in Appendices D

6.4 Terms and Conditions of Payment:
Payments will be made to the account of the Bidder and according to the payment schedule stated in the SC.

Payment term will follow the milestones in reference to the Time Schedule suggested in Section 4 Para 4.6 (Report and Time Schedule)

Scope of work	**Suggested Completion period (W=Week)**	**Deliverable(s)**	**Payment to Bidder upon completion (% of project cost excluding AMC)**
1.Requirement analysis	W1 – W2 (2 weeks)	Need Assessment Report Software Requirement Specification (SRS) delivery and signoff	5%
2. Preparation of real world object catalogue	W1 – W2 (2 weeks)	Real World Object Catalogue	5%
3. Conceptual Data Model development	W2 – W4 (3 weeks)	Conceptual Data Model	5%
4. Procurement and installation of hardware and software	W2 – W9 (8 weeks)	Required hardware and software installed at site to WBSCST's satisfaction	30%
5. Customisation of data/ software for creation of Geo-portal	W4 – W9 (6 weeks)	Customized data / software code for the Geo-portal with necessary documentation	5%

6. Centralised database	W5 – W10 (6 weeks)	A Centralized database containing available spatial, attribute or statistical data sets and metadata sets	10%
7. Creation of Geoportal, Publishing metadata in the Geo-portal/ Data Clearinghouse Installation of the security system	W4 – W10 (7 weeks)	A web-accessible Geo-portal with the above requirement/ specifications with web services and custom applications development	5%
8. User acceptance testing followed by Security audit	W11 – W16 (6 weeks)	Test report, Security audit clearance report	10%
9. Final deployment and Go-live of the complete system and training to operational staff	W17 – W21 (5 weeks)	Web-accessible Geo-portal and data clearinghouse to the satisfaction of WBSCST conforming to the availability of all the above relevant deliverables along with the reports mentioned in RFP, Trained staff to the satisfaction	10%
10.Handholding	W21-W32 (12 weeks)	Handholding of the users	5%
11. Onsite system maintenance	W21-W44 (24 weeks)	Onsite system support for uninterruptible availability of the Geo-portal/ data clearinghouse	5%
12. Eight week successful after go live			5%
13. AMC for 5 years after Go Live	After Go-Live		5% of AMC value will be paid at end of each quarter

Payment of Annual Maintenance Contract will be made on satisfactory performance at the end of each quarter for five years after WBSCST takes over the complete system.

7. GOOD FAITH

The Parties undertake to act in good faith with respect to each other's rights under this Contract and to adopt all reasonable measures to ensure the realization of the objectives of this Contract.

8. SETTLEMENT OF DISPUTES

8.1 Amicable Settlement

The Parties agree that the avoidance or early resolution of disputes is crucial for a smooth execution of the Contract and the success of the assignment. The Parties shall use their best efforts to settle amicably all disputes arising out of or in connection with this Contract or its interpretation.

8.2 Dispute Resolution

Any dispute between the Parties as to matters arising pursuant to this Contract that cannot be settled amicably within thirty (30) days after receipt by one Party of the other Party's request for such amicable settlement may be submitted by either Party for settlement in accordance with the provisions specified in the SC.

9. DATA SECURITY

9.1 In the course of providing the Services, the Bidder will compile, process and store data which will be the sole property of WBSCST. The Bidder and each of its users and employees designated for this project are responsible for complying with its respective obligations under the applicable data

protection laws and regulations governing the WBSCST data.

9.2 The Bidder is required to perform or adhere to only those security measures concerning the WBSCST data which were in place as of the date on which this Contract comes into force and effect and those made available to it from time to time in accordance with the TOR.

9.3 Control of Databases: The control of the databases of the project will exclusively rest with WBSCST.

9.4 Deployment of Geo-portal/ data clearinghouse: The deployment of the Geo-portal/ data will be done by Vendor under the authority of WBSCST.

9.5 Intellectual Property Rights: WBSCST will have all the IPR for the above mentioned deliverables guided by the Intellectual Property Laws.

9.6 Documents Prepared by the Bidder will to be the Property of the WBSCST: All plans, drawings, specifications, designs, reports, other documents and software prepared by the Bidder for the WBSCST under this Contract shall become and remain the sole property of the WBSCST, and the Bidder will be duty bound to deliver all such documents to the WBSCST together with a detailed inventory thereof before expiration on termination of contract.

9.7 Equipment and Materials Furnished by the WBSCST: Equipment and materials made available to the Bidder by WBSCST, or purchased by the Bidder with funds provided by WBSCST, shall be the property of WBSCST and shall be marked accordingly. Upon termination or expiration of this Contract, the Bidder shall make available to WBSCST an inventory of such equipment and materials.

III. Special Conditions of Contract

1. The language/s is English.

2. The addresses are:
Client: West Bengal State Council of Science & Technology (WBSCST), Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal, (S & T Branch)
Bikash Bhavan (4th Floor), Salt Lake, Kolkata – 700 091
Attention: Joint Secretary, DHESTBT
Phone: 033 2359 6616, 2569 3705/12/04
Fax: 033 2334 2969
E-mail:

Bidder:
Attention:
Fax:
E-mail:
3. The Authorized Representatives are (vide GC 1.6):

For the Client:
For the Bidder:

4. {The Effective Date is [insert date]} (vide GC 2.1):
Note: The Effective Date may be specified by reference to conditions of effectiveness of the Contract. If the Contract shall come into effect on the date it is signed, this Clause should be deleted from the

SC.
5. The date for the commencement of Services is *[insert date]* (vide GC 2.2):
6. The time period shall be [insert time period, e.g.: twelve months]. (vide GC 2.3):

7. The Bidder will be duty bound to deliver Mother copies of all documents, software (including hard copies and soft copies) concerned with this contract to WBSCST which will be treated as sole property of WBSCST and any unauthorized use of those documents by the Bidder or any of its associates will be subject to prosecution and legal consequences so far as laws presently prevailing in this regard are concerned. (vide GC 3.7)

8. The amount in local currency is *[insert amount]*. (vide GC 6.2)
The accounts are: for local currency: *[insert account]*

9. Disputes shall be settled by arbitration in accordance with the following provision:
Selection of Arbitrators: Each dispute submitted by a Party to arbitration shall be heard by a sole arbitrator or an arbitration panel, if required and will be appointed by the Chief Secretary to the Government of West Bengal or Secretary, Science & Technology Department, Government of West Bengal. (vide GC 8.2)

10. MISCELLANEOUS

(a) The *English* language shall be the official language for all purposes

(b) The decision of the sole arbitrator or of a majority of the arbitrators shall be final and binding and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.

(c) Place of Arbitration –Kolkata.

IV. Appendices

APPENDIX A – DESCRIPTION OF SERVICES:
Give detailed descriptions of the Services to be provided, dates for completion of various tasks, place of performance for different tasks, specific tasks to be approved by Client, etc.

APPENDIX B - REPORTING REQUIREMENTS:
List format, frequency, and contents of reports; persons to receive them; dates of Submission; etc.

APPENDIX C – KEY PERSONNEL AND SUB-BIDDERS :
List under:
C-1 Titles [and names, if already available], detailed job descriptions and minimum qualifications of Key Personnel to be assigned to work and estimated staff-months for each.
C-2 List of approved Sub-Bidders (if already available); same information with respect to their Personnel as in C-1.

APPENDIX D - BREAKDOWN OF CONTRACT PRICE IN LOCAL CURRENCY:
List here the elements of cost used to arrive at the breakdown of the lump-sum price –
1. Monthly rates for Personnel (Key Personnel and other Personnel).
2. Reimbursible expenditures.
This appendix will exclusively be used for determining remuneration for additional services.

APPENDIX E - SERVICES AND FACILITIES PROVIDED BY THE WBSCST:
List here the services and facilities to make available to the Bidder by the WBSCST.
APPENDIX F - FORM OF BANK GUARANTEE

Annexure: Proforma of Bank Guarantee towards Performance Security

(Vide Cl. 7 of Data Sheet)

(To be submitted by the successful bidder only after selection)

Bank Guarantee towards Performance Security

Ref. No. _____ Bank Guarantee No. _____ Dated _____

To,
The Member Secretary
West Bengal State Council of Science & Technology
Bikash Bhavan(4th Floor)
Salt Lake, Kolkata-700091
West Bengal, India

Dear Sir,

1. In consideration of West Bengal State Council of Science & Technology, having its office at Bikash Bhavan (4th Floor), Salt Lake, Kolkata – 700 091 (hereinafter referred to as `WBSCST', which expression shall, unless repugnant to the context or meaning thereof, include all its successors, administrators, executors and assignees) after receipt of the LOI dated _____ with M/s _____ having its registered/head office at _____(hereinafter referred to as the 'CONTRACTOR') which expression shall, unless repugnant to the context or meaning thereof include all its successors, administrators, executors and assignees) and WBSCST having agreed that the CONTRACTOR shall furnish to WBSCST a performance guarantee for Indian Rupees ..... for the faithful performance of the entire CONTRACT.

2. We (name of the bank) _____ registered under the laws of _____ having head/registered office at _____ (hereinafter referred to as "the Bank", which expression shall, unless repugnant to the context or meaning thereof, include all its successors, administrators, executors and permitted assignees) do hereby guarantee and undertake to pay immediately on first demand in writing any /all moneys to the extent of Indian Rupees (in figures) _____ (Indian Rupees(in words)_____) without any demur, reservation, contest or protest and/or without any reference to the CONTRACTOR. Any such demand made by WBSCST on the Bank by serving a written notice shall be conclusive and binding, without any proof, on the bank as regards the amount due and payable, notwithstanding any dispute(s) pending before any Court, Tribunal, Arbitrator or any other authority and/or any other matter or thing whatsoever, as liability under these presents being absolute and unequivocal. We agree that the guarantee herein contained shall be irrevocable and shall continue to be enforceable until it is discharged by WBSCST in writing. This guarantee shall not be determined, discharged or affected by

the liquidation, winding up, dissolution or insolvency of the CONTRACTOR and shall remain valid, binding and operative against the bank.

3. The Bank also agrees that WBSCST at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the CONTRACTOR and notwithstanding any security or other guarantee that WBSCST may have in relation to the CONTRACTOR's liabilities.

4. The Bank further agrees that WBSCST shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said CONTRACT or to extend time of performance by the said CONTRACTOR(s) from time to time or to postpone for any time or from time to time exercise of any of the powers vested in WBSCST against the said CONTRACTOR(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said CONTRACTOR(s) or for any forbearance, act or omission on the part of WBSCST or any indulgence by WBSCST to the said CONTRACTOR(s) or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

5. The Bank further agrees that the Guarantee herein contained shall remain in full force during the period that is taken for the performance of the CONTRACT and all dues of WBSCST under or by virtue of this CONTRACT have been fully paid and its claim satisfied or discharged or till WBSCST discharges this guarantee in writing, whichever is earlier.

6. This Guarantee shall not be discharged by any change in our constitution, in the constitution of WBSCST or that of the CONTRACTOR.

7. The Bank confirms that this guarantee has been issued with observance of appropriate laws of the country of issue.

8. The Bank also agrees that this guarantee shall be governed and construed in accordance with Indian Laws and subject to the exclusive jurisdiction of Indian Courts of Kolkata.

9. Notwithstanding anything contained herein above, our liability under this Guarantee is limited to Indian Rupees (in figures) _____ (Indian Rupees (in words) _____) and our guarantee shall remain in force until _____(indicate the date of expiry of bank guarantee)

Any claim under this Guarantee must be received by us before the expiry of this Bank Guarantee. If no such claim has been received by us by the said date, the rights of WBSCST under this Guarantee will cease. However, if such a claim has been received by us within the said date, all the rights of WBSCST under this Guarantee shall be valid and shall not cease until we have satisfied that claim.

In witness whereof, the Bank through its authorized officer has set its hand and stamp on this day of .....20___ at.....

WITNESS NO. 1

(Signature)
Full name and official
address (in legible letters)

(Signature)
Full name, designation and
address (in legible letters)
with Bank stamp

Attorney as per power of
Attorney No.....

WITNESS NO. 2 Dated…….

(Signature)
Full name and official
Address (in legible letters)

Annexure: Pre-Bid Query Format (vide Cl.1.3 of Data Sheet)

(The below format must be submitted in the letter head of the bidder and a soft copy format in .XLS format is to be submitted to the mentioned e-mail addresses as mentioned under clause 1.6.Pre-bid Conference)

Name of the Project:
Name of the Bidder:

Sl. No.	Section No.	Clause No.	Vol. and Page No.	Reference/ Subject	Clarification Sought

(Signature of the Bidder)

Printed Name
Designation
Seal.
Date:
Place:
Business Address:

Note: All italicized text is for indicative purposes only to assist in preparing this form and shall be deleted from the final product in response to the Client's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

Annexure: Manufacturer Authorization Format:
Manufacturer Authorization Format is to be submitted stating fulfillment of all warranty obligations of the bid.

Manufacturer's Authorization Letter

Invitation for Tender No.:	
Date:	

To:
Joint Secretary,
Department of Higher Education,
Science and Technology and Biotechnology
Govt. of West Bengal
Bikash Bhavan (4th Floor)
Salt Lake, Kolkata-700091

WHEREAS, We ……. ……..Who is Manufacturer / Exclusive Distributor of ……(Product Name)…… having factories at …(Address of Factory)……

THEREFORE, we do hereby

Authorize **……**(Bidder Name)…….having its corporate office at **……**(Bidder Address)……to supply the following Goods,

- (Good / Product Name)

We hereby extend our full guarantee and warranty as stated in the RFP, with respectto the goods offered in the above Tenderer. We also certify that Goods/ Products offered in this bid will not be end of life during the warranty period mentioned in the RFP

Signed:

Name:
Address:

Title:
Date: