INFORMATION AND COMMUNICATION TECHNOLOGY AGENCY OF SRI LANKA

BIDDING DOCUMENT

NATIONAL COMPETITIVE BIDDING (NCB)

FOR

Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka

INVITATION FOR BIDS No: ICTA/GOSL/SER/NCB/2016/77

May, 2017

Information and Communication Technology Agency of Sri Lanka

Invitation for Bids (IFB)

Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka - IFB No: ICTA/GOSL/ SER/NCB/2016/77

1. Information and Communication Technology Agency of Sri Lanka (ICTA) that functions under the purview of Ministry of Telecommunication and Digital Infrastructure (MTDI), intends to implement web-based spatial data management system to support the sustainable NSDI in Sri Lanka.

2. The Chairman, Project Procurement Committee (PPC), on behalf of Information and Communication Technology Agency of Sri Lanka (ICTA), now invites sealed Bids from eligible and qualified Bidders for implementing the web-based spatial data management system to support the sustainable NSDI in Sri Lanka.

    Detailed description of schedule of requirements is given in the Bidding Document.

3. Bidding will be conducted using the National Competitive Bidding (NCB) procedure and is open to all eligible and qualified bidders as defined in Procurement Guidelines of Democratic Socialist Republic of Sri Lanka (GoSL) that meet the qualification requirements specified in the Bidding Documents.

4. Interested eligible Bidders may obtain further information from Mr. Gamini Karunaratne, Director-Procurement**,** ICTA, 160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05 and inspect the Bidding documents free of charge during office hours **(0900 Hrs 1700 Hrs)** on working days commencing from **May 16, 2017** at the office of ICTA at the above address (Telephone: 2369099, Facsimile: 2369091 email: procurement@icta.lk**).** Bidding documents are also available on https://www.icta.lk/procurement/ only for reference purposes and interested eligible Bidders shall purchase the Bidding Documents as described in paragraph (5) below.

5. A complete set of Bidding Document in English Language may be purchased by interested Bidders on submission of a written application and upon payment of a non-refundable fee of Sri Lankan Rupees Twelve Thousand Five Hundred (LKR 12,500.00) effective from **May 16**, **2017** during office hours on working days from the office of the ICTA at 160/24, 2nd floor, Kirimandala Mawatha, Colombo 05. The method of payment will be by cash.

6. A pre-bid meeting which potential Bidders may attend will be held at **1400 Hrs (2.00 P.M)** on **May 26, 2017** at the office of ICTA at the above address.

7. Bids in hard copies (As per ITB clause 20 of Bidding Document) must be delivered to Director-Procurement, C/o Managing Director/Chief Executive Officer**,** Information and Communication Technology Agency of Sri Lanka (ICTA)**,** 160/24, 2nd Floor,

Kirimandala Mawatha , Colombo 05 at or before **1500 hrs (3.00 p.m.) on June 12, 2017**. Late Bids and Bids sent electronically will not be accepted and will be rejected.

8. All Bids must be accompanied by Bid Securities in the form of a Bank Guarantee using the format given with the Bidding Documents in the amount of Sri Lankan Rupees Nine Hundred Thousand (LKR 900,000.00).

9. Bids shall be valid for a period of 90 days from the date of deadline for submission of the Bids.

10. Bids will be opened immediately after the deadline for submission of bids, in the presence of Bidders or their authorized representatives who choose to attend in person at the address stated above (in Para 7).

11. ICTA will not be responsible for any costs or any expenses incurred by the Bidders in connection with the preparation or delivery of Bids.

Chairman
Project Procurement Committee
Information and Communication Technology Agency of Sri Lanka
160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05

May 15, 2017

Section 1
Instructions to Bidders

A. General

1. Scope of Bid

1.1 The Employer, as defined in the **Bidding Data Sheet (BDS)**, invites bids for the Services, as described in the Appendix A to the Contract. The name and identification number of this National Competitive Bidding (NCB) Contract is **provided in the BDS.**

1.2 The successful Bidder will be expected to complete the performance of the Services by the Intended Completion Date **provided in the BDS.**

2. Source of Funds

2.1 Payments under this contract will be financed by the source **specified in the BDS.**

3. Corrupt or Fraudulent Practices

3.1 The attention of the bidders is drawn to the followings:

- Parties associated with Procurement Actions, namely, suppliers/contractors and officials shall ensure that they maintain strict confidentiality throughout the process;

- Officials shall refrain from receiving any personal gain from any Procurement Action. No gifts or inducement shall be accepted. Service providers/Suppliers/contractors are liable to be disqualified from the bidding process if found offering any gift or inducement which may have an effect of influencing a decision or impairing the objectivity of an official.

3.2 The Employer requires the bidders, suppliers, service providers, and consultants to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy:

a) *"corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;*

b) *"fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;*

c) *"collusive practice" means a scheme or arrangement between two or more bidders, with or without the knowledge of the Employer to establish bid prices at*

artificial, noncompetitive levels; and

> d) *"coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a contract.*

3.3 If the Employer found any unethical practices as stipulated under ITB Clause 3.2, the Employer will reject a bid, if it is found that a Bidder directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the Contract in question.

4. Eligible Bidders

4.1 All bidders shall possess legal rights to supply the Services under this contract.

4.2 A Bidder shall not have a conflict of interest. All bidders found to have conflict of interest shall be disqualified. Bidders may be considered to have a conflict of interest with one or more parties in this bidding process, if they:

(a) are or have been associated in the past, with a firm or any of its affiliates which have been engaged by the Employer to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the services to be purchased under these Bidding Documents ; or

4.3 A Bidder that is under a declaration of ineligibility by the Government of Sri Lanka (GOSL), at the date of submission of bids or at the date of contract signing, shall be disqualified.

4.4 Foreign Bidder may submit a bid only if so stated in the BDS.

5. Qualification of the Bidder

5.1 All bidders shall provide in Section III, Bidding Forms, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

5.2 In the event that prequalification of potential bidders has been undertaken **as stated in the BDS**, only bids from pre-qualified bidders shall be considered for award of Contract, in which case the provisions of sub-clauses 5.3 to 5.6 hereafter shall not apply. These qualified bidders should submit with their bids any information updating their original prequalification applications or, alternatively, confirm in their bids that the originally submitted prequalification information remains essentially correct as of the date of bid submission.

5.3 If the Employer has not undertaken prequalification of potential bidders, all bidders shall include the following information and documents with their bids, unless otherwise

stated in the BDS:

(a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;

(b) total monetary value of Services performed for each of the last three years;

(c) experience in Services of a similar nature and size for each of the last three years, and details of Services under way or contractually committed; and names and address of clients who may be contacted for further information on those contracts;

(d) list of major items of equipment proposed to carry out the Contract;

(e) qualifications and experience of key site management and technical personnel proposed for the Contract;

(f) reports on the financial standing of the Bidder, such as profit and loss statements and auditor's reports for the past five years;

(g) evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources);

(h) authority to the Employer to seek references from the Bidder's bankers; and

(i) information regarding any litigation, current or during the last three years, in which the Bidder is involved, the parties concerned, and disputed amount;

5.4 Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless otherwise stated in the **BDS**:

(a) the Bid shall include all the information listed in ITB Sub-Clause 5.3 above for each joint venture partner;

(b) the Bid shall be signed so as to be legally binding on all partners;

(c) the Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; alternatively, a Letter of Intent to execute a joint venture agreement, prior to the signing of

the Contract, in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;

(d) one of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; when a foreign partner/s is/are involved one of the local partners shall be nominated as being in charge; and

(e) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

5.5 To qualify for award of the Contract, bidders shall meet the following minimum qualifying criteria:

(a) annual volume of Services of at least the amount **specified in the BDS;**

(b) experience as service provider in the provision of at least two service contracts of a nature and complexity equivalent to the Services over the last Three (03) years **as specified in the BDS;**

(c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment **listed in the BDS**;

(d) a Project Manager with Five (05) years' experience in Services of an equivalent nature and volume, including no less than Three (03) years as Manager; and

(e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than the amount specified in the **BDS**.

5.6 A history of awards against the bidder or any partner of a Joint Venture in litigation or in Arbitration may result in disqualification of the bid.

5.7 The figures for each of the partners of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria of ITB Sub-Clause 5.5(a) and (e); however, for a joint venture to qualify the partner in charge must meet at least 75 percent of those minimum criteria for an individual Bidder and other partners at least 40 percent of the criteria. Failure to comply with this requirement will result in rejection of the joint venture's Bid.

6. One Bid per Bidder

6.1 Each Bidder shall submit only one Bid, either individually or as a partner in a joint venture. A Bidder who submits or participates in more than one Bid will cause all the proposals

with the Bidder's participation to be disqualified.

7. Cost of Bidding	7.1	The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the Employer will in no case be responsible or liable for those costs.
8. Site Visit	8.1	The Bidder, at the Bidder's own responsibility and risk, may visit and examine the Site of required Services and its surroundings and obtain all information that may be necessary for preparing the Bid and entering into a contract for the Services. The costs of visiting the Site shall be at the Bidder's own expense.

B. Bidding Documents

9. Content of Bidding Documents	9.1	The set of bidding documents comprises the documents listed in the table below and addenda issued in accordance with ITB Clause 11:

Section I   Instructions to Bidders

Section II   Bidding Data Sheet

Section III   Bidding Forms

Section IV   Eligible countries (Not applicable)

Section V   Activity Schedule (Description of services)

Section VI   General Conditions of Contract

Section VII Special Conditions of Contract

Section VIII Performance Specifications and Drawings (if Applicable)

Section IX   Contract Forms

	9.2	The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at the Bidder's risk and may result in the rejection of its bid. Sections III, V, and IX should be completed and returned with the Bid in the number of copies specified in the **BDS**.
10. Clarification of Bidding Documents	10.1	A interested Bidder requiring any clarification of the bidding documents may notify the Employer by email at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification received earlier than 10 days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all Bidders who have purchased the bidding documents, including a description of the inquiry, but without identifying its source.
11. Amendment of	11.1	Before the deadline for submission of bids, the Employer may

Bidding Documents   modify the bidding documents by issuing addenda.

11.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated by e-mail to all Bidders of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum by email to the Employer.

11.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend, as necessary, the deadline for submission of bids, in accordance with ITB Sub-Clause 21.2 below.

C. Preparation of Bids

12. Language of Bid

12.1 The Bid, as well as all correspondence and documents relating to the Bid (including supporting documents and printed literature) exchanged by the Bidder and the Employer, shall be written in English language. In the event a document in a language other than English need be submitted, an official translation of the same in English need be submitted along with the document, and the content of the translated document shall only be recognized.

13. Documents Comprising the Bid

13.1 The Bid submitted by the Bidder shall comprise the following:

    (a)   The Form of Bid (in the format indicated in Section III);

    (b)   Bid Security;

    (c)   Priced Activity Schedule;

    (d)   Qualification Information Form and Documents;

and any other materials required to be completed and submitted by bidders, as **specified in the BDS**.

14. Bid Prices

14.1 The Contract shall be for the Services, as described in Appendix A to the contract and in the Specifications, Section VIII, based on the priced Activity Schedule, Section V, submitted by the Bidder.

14.2 The Bidder shall fill in rates and prices for all items of the Services described in the in Specifications (or Description of services), Section VIII and listed in the Activity Schedule, Section V. Items for which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Activity Schedule.

14.3 The Service Provider and its Personnel shall pay such taxes, duties, fees, and other impositions as may be levied under the Applicable Law, the amount of which is deemed to have been included in the Contract Price. However, VAT shall not be included in the price but shall be indicated separately.

14.4 The Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected

14.5 For the purpose of determining the remuneration due for additional Services, a breakdown of the lump-sum price shall be provided by the Bidder in the form of Appendix E to the Contract.

15. Currencies of Bid and Payment

15.1 The Bidder shall quote in Sri Lankan Rupees for local services and the payment shall be made for such services in Sri Lankan Rupees.

15.2 The Bidder may quote in US Dollars for services for which foreign currencies involved. And the Bidder may be required by the Employer to justify to the Employer's satisfaction for such foreign currency requirements if any.

16. Bid Validity

16.1 Bids shall remain valid until the date specified in the **BDS**. A bid valid for a shorter date shall be rejected by the Employer as non responsive.

16.2 In exceptional circumstances, prior to the expiration of the bid validity date, the Employer may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB Clause 17, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its bid.

17. Bid Security

17.1 The Bidder shall furnish as part of its bid, a Bid Security or a Bid-Securing Declaration, as specified in the **BDS**.

17.2 The Bid Security shall be in the amount specified in the **BDS** and denominated in Sri Lankan Rupees, and shall:

(a) at the bidder's option, be in the form of either a bank draft, a letter of credit, or a bank guarantee from a banking institution;

(b) be issued by any commercial bank licensed by the Central Bank of Sri Lanka.

(c) be substantially in accordance with the form of Bid

Security included in Section III, Bidding Forms,

(d) be payable promptly upon written demand by the Employer in case the conditions listed in ITB Sub-Clause 17.5 are invoked;

(e) be submitted in its original form; copies will not be accepted;

(f) remain valid for a period of 28 days beyond the validity period of the bids, as extended, if applicable, in accordance with ITB Sub-Clause 16.2;

17.3 If a Bid Security or a Bid- Securing Declaration is required in accordance with ITB Sub-Clause 17.1, any bid not accompanied by a substantially responsive Bid Security or Bid Securing Declaration in accordance with ITB Sub-Clause 17.1, shall be rejected by the Employer as non-responsive.

17.4 The Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's furnishing of the Performance Security pursuant to ITB Clause 35.

17.5 The Bid Security may be forfeited or the Bid Securing Declaration executed:

(a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Submission Form, except as provided in ITB Sub-Clause 16.2; or

(b) if the successful Bidder fails to:

(i) sign the Contract in accordance with ITB Clause 34;

(ii) furnish a Performance Security in accordance with ITB Clause 35.

17.6 The Bid Security or Bid- Securing Declaration of a JV must be in the name of the JV that submits the bid. If the JV has not been legally constituted at the time of bidding, the Bid Security or Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent to constitute the JV.

18. Alternative Proposals by Bidders

18.1 Alternative bids shall not be considered.

19. Format and Signing of Bid

19.1 The Bidder shall prepare one original of the documents comprising the Bid as described in ITB Clause 11 of these Instructions to Bidders, bound with the volume containing the Form of Bid, and clearly marked "ORIGINAL." In addition, the Bidder shall submit copies of the Bid, in the number **specified in the BDS,** and clearly marked as "COPIES." In the event of

discrepancy between them, the original shall prevail.

19.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clauses 5.3(a) or 5.4(b), as the case may be. All pages of the Bid where entries or amendments have been made shall be initialed by the person or persons signing the Bid.

19.3 The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the Bid.

D. Submission of Bids

20. Sealing and Marking of Bids

20.1 The Bidder shall seal the original and all copies of the Bid in two inner envelopes and one outer envelope, duly marking the inner envelopes as "ORIGINAL" and "COPIES".

20.2 The inner and outer envelopes shall

(a) bear the name and address of the Bidder;

(b) be addressed to the Employer at the address provided in the **BDS**

(c) **bear the name and identification number of the Contract as** defined in the BDS and

(d) provide a warning not to open before the specified time and date for Bid opening as **defined in the BDS**

20.3 In addition to the identification required in ITB Sub-Clause 20.2, the inner envelopes shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared late, pursuant to ITB Clause 22.

20.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

21. Deadline for Submission of Bids

21.1 Bids shall be delivered to the Employer at the address specified above (Refer 20.2 (b)) no later than the time and date **specified in the BDS.**

21.2 The Employer may extend the deadline for submission of bids by issuing an amendment in accordance with ITB Clause 11, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

22. Late Bids	22.1	The Employer shall not consider any bid that reaches after the deadline for submission of bids. Any bid received by the Employer after the deadline for submission of bids shall be declared late, rejected, and returned unopened to the Bidder.
23. Modification and Withdrawal of Bids	23.1	Bidders may modify or withdraw their bids by giving notice in writing before the deadline prescribed in ITB Clause 21.
	23.2	Each Bidder's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with ITB Clauses 19 and 20, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL," as appropriate.
	23.3	No Bid may be modified after the deadline for submission of Bids.
	23.4	Withdrawal of a Bid between the deadline for submission of bids and the expiration of the period of Bid validity specified in the BDS or as extended pursuant to ITB Sub-Clause 16.2 may result in the forfeiture of the Bid Security pursuant to ITB Clause 17.
	23.5	Bidders may only offer discounts to, or otherwise modify the prices of their bids by submitting Bid modifications in accordance with this clause, or included in the original Bid submission.

E. Bid Opening and Evaluation

24. Bid Opening	24.1	The Employer will open the bids, including modifications made pursuant to ITB Clause 23, in the presence of the bidders' representatives who choose to attend at the time and in the place **specified in the BDS.**
	24.2	Envelopes marked "WITHDRAWAL" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to ITB Clause 23 shall not be opened.
	24.3	The bidders' names, the Bid prices, the total amount of each Bid and of any alternative Bid (if alternatives have been requested or permitted), any discounts, Bid modifications and withdrawals, the presence or absence of Bid Security, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No bid shall be rejected at bid opening except for the late bids pursuant to ITB Clause 22; Bids, and modifications, sent pursuant to ITB Clause 23 that are not opened and read out at bid opening will not be considered for further evaluation regardless of the circumstances. Late and withdrawn bids will be returned unopened to the bidders.

24.4 The Employer will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with ITB Sub-Clause 24.3.

25. Process to Be Confidential
25.1 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process. Upon the award to the successful bidder, the details of which may be availed on request. Any effort by a Bidder to influence the Employer's processing of bids or award decisions may result in the rejection of his Bid.

25.2 If, after notification of award, a bidder wishes to ascertain the grounds on which its bid was not selected, it should address its request to the Employer, who will provide written explanation indicating specific short-comings. Any request for explanation from one bidder should relate only to its own bid; information about the bid of competitors will not be addressed.

26. Clarification of Bids
26.1 To assist in the examination, evaluation, and comparison of bids, the Employer may, at the Employer's discretion, ask any Bidder for clarification of the Bidder's Bid, including breakdowns of the prices in the Activity Schedule, and other information that the Employer may require. The request for clarification and the response shall be in writing, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids in accordance with ITB Clause 28.

26.2 Subject to ITB Sub-Clause 26.1, no Bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, he should do so in writing.

26.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation or contract award decisions may result in the rejection of the Bidder's bid.

27. Examination of Bids and Determination of Responsiveness
27.1 Prior to the detailed evaluation of bids, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in ITB Clause 4; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the bidding documents.

27.2 A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Services; (b) which limits

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in any substantial way, inconsistent with the bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.

27.3 If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

28. Correction of Errors

28.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Arithmetical errors will be rectified by the Employer on the following basis: if there is a discrepancy between unit prices 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 an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; if there is a discrepancy between the amounts in figures and in words, the amount in words will prevail.

28.2 The amount stated in the Bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors and, with the concurrence of the Bidder, shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount, the Bid will be rejected, and the Bid Security may be forfeited in accordance with ITB Sub-Clause 17.5(b).

29. Currency for Bid Evaluation

29.1 For evaluation and comparison purposes, the currency (ies) of the bid shall be converted into a single currency as specified in the BDS.

30. Evaluation and Comparison of Bids

30.1 The Employer will evaluate and compare only the bids determined to be substantially responsive in accordance with ITB Clause 27.

30.2 In evaluating the bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price as follows:

(a) making any correction for errors pursuant to ITB Clause 28;

(b) excluding provisional sums and the provision, if any, for contingencies in the Activity Schedule, Section V, but including Day work, when requested in the Specifications (or Description of services) Section VIII;

(c) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with ITB

Sub-Clause 23.5.

30.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors, which are in excess of the requirements of the bidding documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in Bid evaluation.

30.4 The estimated effect of any price adjustment conditions under Sub-Clause 6.6 of the General Conditions of Contract, during the period of implementation of the Contract, will not be taken into account in Bid evaluation.

31. Preference for Domestic Bidders

31.1 Domestic bidders shall not be eligible for any margin of preference in Bid evaluation.

F. Award of Contract

32. Award Criteria

32.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Documents, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.

Subject to ITB Clause 33, the Employer will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of ITB Clause 4, and (b) qualified in accordance with the provisions of ITB Clause 5.

32.2 If, pursuant to ITB Sub-Clause 13.2 this contract is being let on a "slice and package" basis, the lowest evaluated Bid Price will be determined when evaluating this contract in conjunction with other contracts to be awarded concurrently. Taking into account any discounts offered by the bidders for the award of more than one contract.

33. Employer's Right to Accept any Bid and to Reject any or all Bids

33.1 Notwithstanding ITB Clause 32, the Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.

34. Notification of Award and Signing of Agreement

34.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, that its Bid has been accepted.

34.2 Until a formal Contract is prepared and executed, the notification of award shall constitute a binding Contract.

34.3 Upon the successful Bidder's furnishing of the signed Contract Form and performance security pursuant to ITB Clause 35, the Employer will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to ITB Clause 17.4

35. Performance Security

35.1 Within fourteen (14) days of the receipt of notification of award from the Employer, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC, using for that purpose the Performance Security Form included in Section IX Contract forms. The Employer shall promptly notify the name of the winning Bidder to each unsuccessful Bidder and discharge the Bid Securities of the unsuccessful bidders pursuant to ITB Sub-Clause 17.4. Refer BDS.

35.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security or execution of the Bid-Securing Declaration. In that event the Employer may award the Contract to the next lowest evaluated Bidder, whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

36. Advance Payment and Security

36.1 The Employer will provide an Advance Payment on the Contract Price as stipulated in the Conditions of Contract, subject to the amount **stated in the BDS.**

Section II. Bidding Data Sheet

The following specific information relating to services to be procured and procurement procedure that will be used shall complement, supplement or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict the provisions in the Bid Data Sheet (BDS) shall prevail over those in the ITB.

Instructions to Bidders Clause Reference

	A. General
1.1	The Employer is: Information and Communication Technology Agency of Sri Lanka The name and identification number of the Contract is; **"Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka**" IFB No: **ICTA/GOSL/ SER/NCB/2016/77** Bidders are required to bid for the total requirement of services given in description of services specified in the Bidding Documents. Bids for partial requirements shall be treated as non-responsive and shall be rejected.
1.2	(a) Completion of customization, installation and configuration of the system should be done within (02) months from the date of contract award. (b) Data collection, compilation and integration should be completed within (04) months from the date of the contract. (c) Story board development and capacity building for stakeholder organizations should be completed within (02) months from the date of contract. (d) Support and maintenance period shall be (05) years from the date of commissioning of web based spatial data management system for National Spatial Data Infrastructure (NSDI) in Sri Lanka.
2.1	The source of funding for this project is: Government of Sri Lanka (GOSL)
4.4	Foreign bidders are allowed to bid and foreign bidders should agree to establish an office in Sri Lanka with adequate competent staff and resources prior to commencement of service which should continue in operation for a period of (05) years for implementation, production, support and maintenance for the system.
5.2	Prequalification of potential bidders has not been undertaken under this procurement activity.
5.3	Prequalification of potential bidders has not been undertaken this procurement activity. All bidders shall include all information and documents stated in ITB 5.3 along with their bids.
5.5(a)	The average annual volume of services performed by the Bidder over the last 3

	years shall be Sri Lankan Rupees hundred million (LKR 100 Million).
5.5(b)	Experience (see 5.3 (c) of BDS) as a service provider being in the business of provisioning of at least two (02) similar nature system related to interactive Spatial Data Map Portal over last three (03) years, and details of services contractually committed, names and addresses of clients who may be contacted for further information on those contracts.
5.5(c)	Should specify the proposed high-level design proposed to be used to cover the volume of services expected to be covered under the contract.
5.5(e)	Bidder must demonstrate access to or availability of financial resources such as liquid assets, un-encumbered real assets, line of credit and other financial means other than any contractual payments to be received under this contract to meet the cash flow requirement of not less than Sri Lankan Rupees fifty million (LKR 50 Million) or equivalent, and net of the bidder's other commitments for this project.

B. Bidding Data

9.2 and 19.1	The number of copies of the Bid to be completed and submitted shall be one in addition to the original bid.
10.1	Pre Bid meeting shall be held at the office of the Information and Communication Technology Agency of Sri Lanka at 160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05 on the following date and time Date: **May 26, 2017** Time: **1400 hrs (2.00 P.M)** Clarifications provided in response to the questions may also be published in the web (https://www.icta.lk/procurement/) without stating the source of the question.
11.2	All addenda may also be published in web (https://www.icta.lk/procurement/)
13.1	Any other additional materials to be submitted with the bid as required and specified in the Bidding Documents
16.1	The period of Bid validity shall be 90 days from the deadline for Bid submission. Accordingly, bids should be valid till **September 10, 2017.**
17.1	The Bidder shall provide: Bid Security in the form of a Bank Guarantee (as per the format given in the Bidding Document) Bid Security shall be issued in favour of; Chairperson, Information and Communication Technology Agency of Sri Lanka, 160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05.
17.2	Bid Security shall be in the amount of Sri Lankan Rupees nine hundred thousand (LKR 900,000.00) in the form of Bank Guarantee
17.2 (a)	Bid Security shall be in the form of a Bank Guarantee (as per the format given in the Bidding Documents).

17.2 (f)	Bid securities shall be valid for 28 days beyond the validity period of the bids. Accordingly, Bid Securities shall remain valid till **October 08, 2017**.
	If the Bid Security is to be issued by a bank outside Sri Lanka, it shall be from a bank that has a correspondent bank in Sri Lanka. Banks in Sri Lanka issuing the bank guarantee shall be a licensed commercial bank under the Banking Act No. 30 of 1988 and supervised by the Central Bank of Sri Lanka. The Bid security shall be enforceable in Sri Lanka.
19,1	The number of copies of the Bid to be completed and submitted shall be one in addition to the original bid.

D. Submission of Bids

20.2 (b)	Address is: Director - Procurement C/o, Managing Director/Chief Executive Officer Information and Communication Technology Agency of Sri Lanka, 160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05.
20.2 (c)	Name and identification number: Name of Contract: **"Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka"** Identification number of Contract No: ICTA/GOSL/SER/NCB/2016/77
20.2 (d)	Shall be marked "Bids shall not be opened prior to deadline for submission of bids".
21.1	**The deadline for submission of bids shall be:** **Time: at or before 1500hrs (3.00 P.M)** **Date: June 12, 2017**

E. Bid Opening and Evaluation

24.1	Bids will be opened immediately after the deadline for submission of bids at the address of; Information and Communication Technology Agency of Sri Lanka, 160/24, 2nd Floor, Kirimandala Mawatha, Colombo 05.

29.1	The currency that shall be used for bid evaluation and comparison purposes is to convert all bid prices expressed in foreign currencies into a single currency, Sri Lankan Rupees.
	The source of exchange rate shall be daily indicative selling exchange rate of foreign currencies published by the Central Bank of Sri Lanka.
	The date of exchange rate shall be the date of deadline for submission of bids.
30.3	Alternative bids and options shall not be considered.
31.1	Not Applicable

F. Award of Contract

32	**Following paragraph is added to clause 32.1**
	At the time the Contract is awarded, the Employer reserves the right to increase or decrease the quantity of Related Services originally specified in Appendix A – (Description of Services) by 20% without any change in the unit prices or other terms and conditions of the bid and the Bidding Documents.
35	The Performance Security acceptable to the Employer shall be the in the Standard Form of unconditional Bank Guarantee (as per the format given in the Bidding Document) issued by any commercial bank licensed by the Central Bank of Sri Lanka and the amount shall be 10% of the total contract price. Performance security shall be submitted within 07 working days of the date of notification of award from the employer.
36.1	Not applicable

Section III. Bidding Forms

Table of Forms

Service Provider's Bid

[date]
To: Chairperson
Information and Communication Technology Agency of Sri Lanka
160/24, Kirimandala Mawatha
Colombo 05

Having examined the bidding documents including addenda No ……..,
we....................(name of the bidder) offer to execute the services of **" Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka"** in accordance with the Conditions of Contract, specifications, drawings and all activities stated in the Description of Services accompanying this Bid as stated in the tables below Table 1, Table 2, Table 3 and Table 4 at total price of Sri Lanka Rupees …................. indicated in the Table below *excluding Value Added Tax (VAT).*

All other levies applicable shall be included in to the price (ITB 14.3).

Table 1

#	Description	Type of work	Price (excluding VAT) in (USD/LKR)
1	Installation, configuration and customization of the website and geo portal as specified in the description of service (**Please refer track 1 and 2 of description of services for additional information**)	Geo portal interface configuration and implementation	
2	Outreach Data collection, preparation and compilation as specified in the service of description (**Note: 30 layers of selected FGDS of different geographic levels/scales as applicable for five sectors. Please refer track 3 and track 4 of description of services for additional information. One week will be given after the pre bid meeting to study the FGDS and availability of data to assess the requirement. References to baseline survey report and requirement study report**)	Data collection and pre processing based on the specific data themes under the identified Scale/resolutions and per square kilometre	
Total Price			

Table 2

#	Description	Price (excluding VAT) in (USD/LKR)	
	Providing Support and Maintenance services for the GeoPortal and Website as mentioned in the Appendix H - Service Level Agreement for a period of 5 year from the date of commissioning (Note: support and maintenance is required for five years.)	1st Year	
		2nd Year	
		3rd Year	
		4th Year	
		5th Year	
Total Price			

Table 3

#	Description	Price per year (excluding VAT) in (USD/LKR)	Number of Years	Number of Licenses	Total Price (excluding VAT) in (USD/LKR)
1	**Centralized Geo Portal Solution Software**				
	Spatial Database Server				
	Web Application Server				
	Web Map Server		**5**	**50**	
	Cache(Image) Server				
	Proxy Server				
	Server OS with security				
	Data format exchange server				
2	**Coordinating Office Software Suit**				
	GIS Desktop (Advanced)		**5**	**1**	
	Data Format exchange Workbench			**1**	
Total Price					

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Note: If any other additional software are required, cost of such software should also include in the total price of the bid. If the above software is provided as one package, provide the package price accordingly.

Table 4

#	Sub Total Price
Table 1	
Table 2	
Table 3	
Total Price	

This Bid and your written acceptance of it shall constitute a binding Contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We hereby confirm that this Bid complies with the Bid validity and Bid Security required by the bidding documents and specified in the Bidding Data Sheet.

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Bidder: _____

VAT registration Number: _____

Address: _____

Qualification Information

1. Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: *[attach copy]*

Place of registration: *[insert]*
Principal place of business: *[insert]*
Power of attorney of signatory of Bid: *[attach]*

1.2 The annual turnover of the last three (03) years, *[insert]*

1.3 Services performed as Service Provider on the provision of Services of a similar nature and complexity over the last three years. Also list details of work under way or committed, including expected completion date.

1.4 Major items of Service Provider's Equipment proposed for carrying out the Services. List all information requested below. Refer also to ITB Sub-Clause 5.5(c).

Item of equipment	Description, make, and age (years)	Condition (new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
(a) (b)			

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data and valid certificates should be submitted. Refer also to ITB Sub-Clause 5.5(d) and GCC Clause 4.1.

Position	Name	Years of experience (general)	Years of experience in proposed position
(a) (b) …			

1.6 Audited Financial statements for the last three years: balance sheets, profit and loss statements, auditors' reports, etc. List below and attach copies.

1.7 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of support documents.

1.8 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Employer.

1.9 Information regarding any litigation, current or within the last three years, in which the Bidder is or has been involved.

Other party(ies)	Cause of dispute	Details of litigation award	Amount involved
(a)			
(b)			

1.10 We certify/confirm that we comply with eligibility requirements as per ITB Clause 4.

1.11 Statement of compliance with the requirements of ITB Sub-Clause 4.2.

1.12 Proposed Program (service work method and project schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the bidding documents.

1.13 Bidder should possess technical know-how, essential equipment and infrastructure facilities to the required level to cover the volume of services expected under the contract.

1.14 Qualifications of the contractor or consortium and its previous experience and capacity to address all elements of the scope of work outlined in this Appendix A, "Description of Services" and accompanying annexes.

2. Joint Ventures

2.1 The information listed in 1.1 - 1.10 above shall be provided for each partner of the joint venture.

2.2 The information in 1.11 above shall be provided for the joint venture.

2.3 Attach the power of attorney of the signatory (ies) of the Bid authorizing signature of the Bid on behalf of the joint venture.

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2.4   Attach the Agreement among all partners of the joint venture (and which is legally binding on all partners), which shows that

      (a)   all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;

      (b)   one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; when a foreign partner/s is/are involved one of the local partners shall be nominated as being in charge; and

      (c)   the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

3. Additional Requirements

3.1   Bidders should provide any additional information required in the BDS and to fulfill the requirements of ITB Sub-Clause 5.1, if applicable.

Letter of Acceptance

[letterhead paper of the Employer]

[date]

To: *[name and address of the Service provider]*

This is to notify you that your Bid dated *[date]* for execution of the **Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka** for the Contract Price of the equivalent of *[amount in numbers and words]* as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our agency.

You are hereby instructed to proceed with the execution of the said contract for the provision of Services in accordance with the Contract documents.

Please return the attached Contract dully signed

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency: _____

Attachment: Contract

Form of Contract

[letterhead paper of the Employer]

LUMP-SUM REMUNERATION

This CONTRACT (hereinafter called the "Contract") is made the *[day]* day of the month of *[month]*, *[year]*, between, on the one hand, *[name of Employer]* (hereinafter called the "Employer") and, on the other hand, *[name of Service Provider]* (hereinafter called the "Service Provider").

[***Note***: *In the text below text in brackets is optional; all notes should be deleted in final text. If the Service Provider consist of more than one entity, the above should be partially amended to read as follows:* "…(hereinafter called the "Employer") and, on the other hand, a joint venture consisting of the following entities, each of which will be jointly and severally liable to the Employer for all the Service Provider's obligations under this Contract, namely, *[name of Service Provider]* and *[name of Service Provider]* (hereinafter called the "Service Provider").]

WHEREAS

(a)   the Employer has requested the Service Provider to provide certain Services as defined in the General Conditions of Contract attached to this Contract (hereinafter called the "Services");

(b)   the Service Provider, having represented to the Employer that they have the required professional skills, and personnel and technical resources, have agreed to provide the Services on the terms and conditions set forth in this Contract at a contract price of…………………… for a period of 36 months from the date of commissioning unless terminated earlier;

(c)   the Employer has received the financial allocation from the Government of Democratic Socialist Republic of Sri Lanka (Hereinafter called as "GOSL") to eligible payments under this Contract.

NOW THEREFORE the parties hereto hereby agree as follows:

1.   The following documents shall be deemed to form and be read and construed as part of this Agreement, and the priority of the documents shall be as follows:

(a)   the Letter of Acceptance;

(b)   the Service Provider's Bid

(c)   the Special Conditions of Contract;

(d)   the General Conditions of Contract;

(e)   the Specifications

(f)   the Priced Activity Schedule

(g)   And the following Appendices

Appendix A: Description of the Services

Appendix B: Schedule of Payments

Appendix C: Key Personnel

Appendix D: Breakdown of Contract Price in Foreign Currency

Appendix E: Breakdown of Contract Price in Local Currency

Appendix F: Services and Facilities Provided by the Employer

Appendix G: Performance Incentive Compensation-Not used

Appendix H: Service Level Agreement

2.   The mutual rights and obligations of the Employer and the Service Provider shall be as set forth in the Contract, in particular:

(a)   the Service Provider shall carry out the Services in accordance with the provisions of the Contract; and

(b)   the Employer shall make payments to the Service Provider 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 *[name of Employer]*

……………………….
[Authorized Representative]   *Seal*

For and on behalf of *[name of Service Provider]*

……………………….
[Authorized Representative]   *Seal*

[***Note: If the Service Provider 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 Service Provider

[name of member]

[Authorized Representative]

[name of member]

[Authorized Representative]

Bid Security (Bank Guarantee)

[The Bank shall fill in this Bank Security (Bank Guarantee) Form in accordance with the instructions   indicated.]

Beneficiary: _____

Date: _____

BID SECURITY (BANK GUARANTEE) No.:   _____

We have been informed that _____ (hereinafter called "the Bidder") has submitted to you its bid dated (hereinafter called "the Bid") for the execution of _____ under Invitation for Bids No. _____ ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a Bid Security (Bank Guarantee).

At the request of the Bidder, we _____ hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

(a)   has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

(b)   having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Form; or (ii) fails or refuses to furnish the performance security, in accordance with the Instructions to Bidders.

This guarantee will expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful bidder; or (ii) twenty-eight days after the expiration of the Bidder's Bid.

Consequently, any demand for payment under this guarantee must be received by us at the office by _____ (date Month year).

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No...............................

_____
[signature(s)]

Section IV. Eligible Countries

Not Applicable

Section V. Activity Schedule

The Service Provider shall establish and provide services as described in the Appendix A – Description of Services. This gives detailed information about the project background, specifications, work flow, activities, and service level requirements etc.

Section VI. General Conditions of Contract

1. General Provisions

1.1 Definitions   1.1   The following words and expressions shall have the meanings hereby assigned to them:

(a)   "Contract" means the Contract Agreement signed by the Parties, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.

(b)   "Contract Documents" means the documents listed in the Contract Agreement, including any amendments thereto.

(c)   "Contract Price" means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, as may be made pursuant to the Contract.

(d)   "Day" means calendar day.

(e)   "Completion Date" means the date of completion of the Services by the Service Provider as certified by the Employer

(f)   "GCC" means the General Conditions of Contract.

(g)   "Services" means the work to be performed by the Service Provider pursuant to this Contract, as described in Appendix A; and in the Specifications and Schedule of Activities included in the Service Provider's Bid.

(h)   "Employer" means the entity who employs the Service Provider

(h)   "Subcontractor" means any natural person, private or government entity, or a combination of the above, to whom any part of the Services is subcontracted by the Supplier.

(i)   "Service Provider" means the natural person, private or government entity, or a combination of the above, whose bid to provide the Services has been accepted by the Employer and is named as such in the Contract Agreement.

(j)   "Service Provider's Bid" means the completed bidding document submitted by the Service Provider to the Employer

(l)   "SCC" means the Special Conditions of Contract by which the

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GCC may be amended or supplemented;

(m) "Specifications" means the specifications of the service included in the bidding document submitted by the Service Provider to the Employer

(n) "The Project Site," where applicable, means the place named in the SCC.

(o) "Activity Schedule" is the priced and completed list of items of Services to be performed by the Service Provider forming part of his Bid;

(p) "Member," in case the Service Provider consist of a joint venture of more than one entity, means any of these entities; "Members" means all these entities, and "Member in Charge" means the entity specified in the SSC to act on their behalf in exercising all the Service Provider' rights and obligations towards the Employer under this Contract;

(q) "Party" means the Employer or the Service Provider, as the case may be, and "Parties" means both of them;

(r) "Personnel" means persons hired by the Service Provider or by any Subcontractor as employees and assigned to the performance of the Services or any part thereof;

1.2 Applicable Law   The law governing the contract shall be the laws of the Democratic Socialist Republic of Sri Lanka.

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

1.4 Notices   1.4.1 Any notice, request, or consent made pursuant to this Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or when sent by registered mail, email or facsimile to such Party at the address specified in the SCC.

1.4.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

1.5 Location   The Services shall be performed at such locations as are specified in Appendix A, in the specifications and, where the location of a particular task is not so specified, at such locations, whether in the Government's country or elsewhere, as the Employer may approve.

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 Employer or the Service Provider may be taken or executed by the officials **specified in the SCC.**

1.7 Inspection and Audit by the GOSL — The Service Provider shall permit the GOSL to inspect its accounts and records relating to the performance of the Services under this contract and to have them audited by auditors appointed by the GOSL, if so required by the GOSL.

1.8 Taxes and Duties — The Service Provider and its Personnel shall pay such taxes, duties, fees, and other impositions as may be levied under the Applicable Law, the amount of which is deemed to have been included in the Contract Price.

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 SCC.**

2.2 Commencement of Services

2.2.1 Program — Before commencement of the Services, the Service Provider shall submit to the Employer for approval a Program showing the general methods, arrangements, order and timing for all activities. The Services shall be carried out in accordance with the approved Program as updated, notified amongst the authorized representatives.

2.2.2 Starting Date — The Service Provider shall start carrying out the Services thirty (30) days after the date the Contract becomes effective, or at such other date as may be **specified in the SCC.**

2.3 Intended Completion Date — Unless terminated earlier pursuant to Sub-Clause 2.6, the Service Provider shall complete the activities by the Intended Completion Date, as is **specified in the SCC.** If the Service Provider does not complete the activities by the Intended Completion Date, it shall be liable to pay liquidated damage as per Sub-Clause 3.8. In this case, the Completion Date will be the date of completion of all activities.

2.4 Modification — Modification of the terms and conditions of this Contract, including any modification of the scope of the Services or of the Contract Price, may only be made by written agreement between the Parties.

2.5 Force Majeure

2.5.1 Definition — For the purposes of this Contract, "Force Majeure" means an event which could not be anticipated oris beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

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2.5.2 No Breach of Contract The failure of a Party to fulfill any of its obligations under the contract shall not be considered to be a breach of, or default under, this Contract insofar as such inability arises from an event of Force Majeure, provided that the Party affected by such an event (a) has taken all reasonable precautions, due care and reasonable alternative measures in order to carry out the terms and conditions of this Contract, and (b) has informed the other Party as soon as possible about the occurrence of such an event.

2.5.3 Extension of Time Any period within which a Party shall, pursuant to clause 2.4 of this Contract, complete any action or task, shall be extended for a period equal to the time during which such Party was unable to perform such action as a result of Force Majeure, provided that such period does not exceed 30 days

2.6 Termination

2.6.1 By the Employer The Employer may terminate this Contract, by not less than fifteen (15) days' written notice of termination to the Service Provider, to be given after the occurrence of any of the events specified in paragraphs (a) through (d) of this Sub-Clause 2.6.1:

(a) if the Service Provider does not remedy a failure in the performance of its obligations under the Contract, within fifteen (15) days after being notified or within any further period as the Employer may have subsequently approved in writing;

(b) if the Service Provider becomes insolvent or bankrupt;

(c) if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the Services for a period of not less than thirty (30) days; or

(d) if the Service Provider, in the judgment of the Employer has engaged in corrupt practices, collusive practices, coercive practices, obstructive practices or fraudulent practices in competing for or in executing the Contract.

For the purposes of this Sub-Clause:

(i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another

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party;

(iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) "obstructive practice" is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a GOSL investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of the GOSL's inspection and audit rights

2.6.2 By the Service Provider The Service Provider may terminate this Contract, by not less than thirty (30) days' written notice to the Employer, such notice to be given after the occurrence of any of the events specified in paragraphs (a) and (b) of this Sub-Clause 2.6.2:

(a) if the Employer fails to pay any monies due to the Service Provider pursuant to this Contract and not subject to dispute pursuant to Clause 7 within forty-five (45) days after receiving written notice from the Service Provider that such payment is overdue; or

(b) if, as the result of Force Majeure, the Service Provider is unable to perform a material portion of the Services for a period of not less than thirty (30) days.

2.6.3 Suspension of funds In the event that the GOSL suspends the funds to the Employer, from which part of the payments to the Service Provider are being made:

(a) The Employer is obligated to notify the Service Provider of such suspension within 7 days of having received the GOSL's suspension notice.

(b) If the Service Provider has not received sums due to by the due date stated in the SCC in accordance with Sub-Clause 6.5 the Service Provider may immediately issue a 14 day termination notice.

2.6.4 Payment Upon termination of this Contract pursuant to Sub-Clauses 2.6.1 or

upon Termination 2.6.2, the Employer shall make the following payments to the Service Provider:

(a) remuneration pursuant to Clause 6 for Services satisfactorily performed prior to the effective date of termination;

(b) except in the case of termination pursuant to paragraphs (a), (b), (d) of Sub-Clause 2.6.1, reimbursement of any reasonable cost incident to the prompt and orderly termination of the Contract, including the cost of the return travel of the Personnel.

3. Obligations of the Service Provider

3.1 General

The Service Provider shall perform the Services in accordance with the Specifications and the Activity Schedule, and carry out its obligations with all due diligence, efficiency, and economy, in accordance with generally accepted professional techniques and practices, and shall observe sound management practices, and employ appropriate advanced technology and safe methods. The Service Provider shall always act, in respect of any matter relating to this Contract or to the Services, as faithful adviser to the Employer, and shall at all times support and safeguard the Employer's legitimate interests in any dealings with third parties.

3.2 Conflict of Interests

3.2.1 Service Provider Not to Benefit from Commissions and Discounts.

The remuneration of the Service Provider pursuant to Clause 6 shall constitute the Service Provider's sole remuneration in connection with this Contract or the Services, and the Service Provider 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 Service Provider shall use their best efforts to ensure that the Personnel and its agents similarly shall not receive any such additional remuneration.

3.2.2 Prohibition of Conflicting Activities

Neither the Service Provider nor its Personnel shall engage, either directly or indirectly, in any of the following activities:

(a) during the term of this Contract, any business or professional activities which would conflict with the activities assigned to them under this Contract;

(b) after the termination of this Contract, such other activities as may be **specified in the SCC.**

3.3 Confidentiality

The Service Provider, and its Personnel shall not, either during the term or within two (2) years after the expiration of this Contract, disclose any proprietary or confidential information relating to the

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	Project, the Services, this Contract, or the Employer's business or operations without the prior written consent of the Employer.
3.4 Insurance to be taken Out by the Service Provider	The Service Provider (a) shall take out and maintain, at its own cost but on terms and conditions approved by the Employer, insurance against the risks, and for the coverage, as shall be **specified in the SCC;** and (b) at the Employer's request, shall provide evidence to the Employer showing that such insurance has been taken out and maintained and that the current premiums have been paid.
3.5 Service Provider's Actions Requiring Employer's Prior Approval	The Service Provider shall obtain the Employer's prior approval in writing before taking any of the following actions:

(a)   appointing such members of the Personnel not listed by name in Appendix C ("Key Personnel"),

(b)   changing the Program of activities; and

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

3.6 Reporting Obligations	The Service Provider shall submit to the Employer the reports and documents specified in Description of Services in the form, in the numbers, and within the periods set forth in the said Appendix.
3.7 Documents Prepared by the Service Provider to Be the Property of the Employer	All plans, drawings, specifications, designs, reports, and other documents and software submitted by the Service Provider in accordance with Sub-Clause 3.6 shall become and remain the property of the Employer, and the Service Provider shall, not later than upon termination or expiration of this Contract, deliver all such documents and software to the Employer, together with a detailed inventory thereof. The Service Provider shall not retain copies of such documents, software, licenses, data and any other form of intellectual property.
3.8 Liquidated Damages	
3.8.1 Payments of Liquidated Damages	The Service Provider shall pay liquidated damages to the Employer at the rate per day **stated in the SCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount **defined in the SCC.** The Employer may deduct liquidated damages from payments due to the Service Provider. Payment of liquidated damages shall not affect the Service Provider's liabilities.
3.8.2 Correction for Over-payment	If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any overpayment of liquidated damages by the Service Provider. The Service Provider shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub-Clause 6.5.

3.8.3 Lack of performance penalty	If the Service Provider has not corrected a Defect within the time specified in the Employer's notice, a penalty for Lack of performance will be paid by the Service Provider. The amount to be paid will be calculated as a percentage of the cost of having the Defect corrected, assessed as described in Sub-Clause 7.2 and **specified in the SCC.**
3.9 Performance Security	The Service Provider shall provide the Performance Security to the Employer in the format of the performance Bank Guarantee given in the bidding document no later than the date specified in the Letter of acceptance. The Performance Security shall be issued in an amount and form and by a bank acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The performance Security shall be valid until a date 28 days from the Completion Date of the Contract in case of a bank guarantee.

4. Service Provider's Personnel

4.1 Description of Personnel	The titles, agreed job descriptions, minimum qualifications, and estimated periods of engagement in the carrying out of the Services of the Service Provider's Key Personnel are described in Appendix C. The Key Personnel listed by title as well as by name in Appendix C are hereby approved by the Employer.
4.2 Removal and/or Replacement of Personnel	(a) Except as the Employer may otherwise agree, no changes shall be made in the Key Personnel. If, for any reason beyond the reasonable control of the Service Provider, it becomes necessary to replace any of the Key Personnel, the Service Provider shall provide as a replacement a person of equivalent or better qualifications and skills.
	(b) If the Employer 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 Service Provider shall, at the Employer's written request specifying the grounds thereof, provide as a replacement a person with qualifications and experience acceptable to the Employer.
	(c) The Service Provider shall have no claim for additional costs arising out of or incidental to any removal and/or replacement of Personnel.

5. Obligations of the Employer

5.1 Assistance and Exemptions

The Employer shall use its best efforts to ensure that the Government shall provide the Service Provider such assistance as **specified in the SCC.**

5.2 Change in the Applicable Law

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 of the Services rendered by the Service Provider, then the remuneration and reimbursable expenses otherwise payable to the Service Provider under this Contract shall be increased or decreased accordingly by agreement between the Parties, and corresponding adjustments shall be made.

5.3 Services and Facilities

The Employer shall make available to the Service Provider the Services and Facilities listed under Appendix F.

6. Payments to the Service Provider

6.1 Lump-Sum Remuneration

The Service Provider's remuneration shall not exceed the Contract Price and shall be a fixed lump-sum and all other costs incurred by the Service Provider in carrying out the Services described in Appendix A. Except as provided in Sub-Clause 5.2, the Contract Price may only be increased above the amounts stated in Sub-Clause 6.2 if the Parties have agreed to additional payments in accordance with Sub-Clauses 2.4 and 6.3.

6.2 Contract Price

The price is payable in Respective currencies as stated in the SCC.

6.3 Payment for Additional Services, and Performance Incentive Compensation

6.3.1 For the purpose of determining the remuneration due for additional Services as may be agreed under Sub-Clause 2.4, a breakdown of the lump-sum price is provided in Appendices D and E.

6.3.2 **If the SCC so specify,** the service provider shall be paid performance incentive compensation as set out in the Performance Incentive Compensation appendix.

6.4 Terms and Conditions of Payment

Payments will be made to the Service Provider according to the payment schedule **stated in the SCC. Unless otherwise stated in the SCC**, the advance payment (Advance for Mobilization, Materials and Supplies) shall be made against the provision by the Service Provider of a bank guarantee for the same amount, and shall be valid for the period **stated in the SCC.** Any other payment shall be made after the conditions **listed in the SCC** for such payment have been met, and the Service Provider have submitted an invoice to the Employer specifying the amount due.

6.5 Period allocated for Payments   Payments shall be made within the period specified in the **SCC**

6.6 Day works

6.6.1 If applicable, the Day work rates in the Service Provider's Bid shall be used for small additional amounts of Services only when the Employer has given written instructions in advance for additional services to be paid in that way.

6.6.2 All work to be paid for as Day works shall be recorded by the Service Provider on forms approved by the Employer. Each completed form shall be verified and signed by the Employer representative as indicated in Sub-Clause 1.6 within two days of the Services being performed.

6.6.3 The Service Provider shall be paid for Day works subject to obtaining signed Day works forms as indicated in Sub-Clause 6.6.2

7. Quality Control

7.1 Identifying Defects   The principle and modalities of Inspection of the Services by the Employer shall be as **indicated in the SCC.** The Employer shall check the Service Provider's performance and notify him of any Defects that are found. Such checking shall not affect the Service Provider's responsibilities. The Employer may instruct the Service Provider to search for a Defect and to uncover and test any service that the Employer considers may have a Defect. Defect Liability Period is as **defined in the SCC**.

7.2 Correction of Defects, and Lack of Performance Penalty

(a) The Employer shall give notice to the Service Provider of any Defects before the end of the Contract. The Defects liability period shall be extended for as long as Defects remain to be corrected.

(b) Every time notice of a Defect is given, the Service Provider shall correct the notified Defect within the length of time specified by the Employer's notice or specified in the Service Level Agreement (SLA).

(c) If the Service Provider has not corrected a Defect within the time specified in the Employer's notice, the Employer will assess the cost of having the Defect corrected, the Service Provider will pay this amount, and a Penalty for Lack of Performance calculated as as specified in Service Level Agreement (SLA).

8. Settlement of Disputes

8.1 Amicable Settlement   The Parties shall use their best efforts to settle amicably all disputes

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arising out of or in connection with this Contract or its interpretation.

8.2 Dispute Settlement

8.2.1 If any dispute arises between the

and the Service Provider in connection with, or arising out of, the Contract or the provision of the Services, whether during carrying out the Services or after their completion, the matter shall be referred to the Adjudicator within 14 days of the notification of disagreement of one party to the other.

8.2.2 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

8.2.3 The Adjudicator shall be paid by the hour at the rate **specified in the BDS and SCC,** together with reimbursable expenses of the types **specified in the SCC**, and the cost shall be divided equally between the Employer and the Service Provider, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

8.2.4 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place **shown in the SCC.**

8.2.5 Should the Adjudicator resign or die, or should the Employer and the Service Provider agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator will be appointed in terms of section 8.2.1.

Section VII. Special Conditions of Contract

Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
1.1(a)	The contract name is; **Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka** The contract number; **ICTA/GOSL/SER/NCB/2016/77**
1.1(h)	The Employer is; Information and Communication Technology Agency of Sri Lanka
1.1(j)	The Service Provider is;_____
1.1(p)	The Member in Charge is: _____
1.3	The language is English. In the event a document in a language other than English need be submitted, an official translation of the same in English need be submitted along with the document, and the content of the translated document shall only be recognized.
1.4	Notices shall be given to the Authorized Representative stated in SCC 1.6
1.5	The Services shall be performed at such location intimated by the Employer in writing.
1.6	The Authorized Representatives at the commencement of this contract are: For the Employer: For the Service Provider: The parties may amend the above on notifications in writing signed by the Chief Executive of the respective institution.
2.1	The date on which this Contract shall come into effect is; the date the contract is signed by both parties (Effective date of the contract).
2.2.2	The Starting date for the commencement of Services is; 03 days from the effective date of the contract.
2.3	Intended completion dates for Successful establishment of the spatial data content management system which handles import data, upload data, export data, sear and query, view, analys, publish and printing data for NSDI within 5 weeks from the commencement date of contract. Production period shall be 3 months from the date of Successful establishment of the spatial data content management system which handles import data, upload data, export data, sear and query, view, analys, publish and printing data for NSDI.

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Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	Employer may decide at its discretion to extend of services period beyond the 3 months period covered under this contract considering the necessity.
2.4	Parties should ensure that due process of approval be obtained prior to such modifications and be in accordance with the GOSL.
3.1	Following are additional requirements that the Service Provider shall comply.
	Upon termination and/or expiration of the contract due to the reasons as specified under GCC 2.6.1 and 2.6.2 respectively, Service Provider shall facilitate transferring of software, licenses, data and any other intellectual property ownership of which belong to the Employer from existing system to a new system designated by the Employer, within a reasonable period of time without any additional cost to the Employer.
	The Service Provider shall be required to sign an Non-Disclosure Agreement (NDA) at the time of signing the contract.
3.2.2 (b)	Neither the Service Provide nor its personnel shall disclose information in confidential nature with regard to the architecture, design and security of the infrastructure of the employer.
3.4	The risks and coverage by insurance shall be:
	(a) Third Party motor vehicle liability insurance in respect of motor vehicles operated in Sri Lanka by the Service provider or its Personnel or any Sub-Contractors or their Personnel; with a minimum coverage of LKR 1,000,000. This refers only to motor vehicles operated by the above parties for the purpose of the contract.
	(b) Third Party liability insurance, with a minimum coverage of 10% of the contract value.
	(c) Professional liability insurance, with a minimum coverage to 110% of the contract value.
	(d) employer's liability and workers' compensation insurance in respect of the Personnel of the service provider and of any Sub-Contractor, in
	accordance with the relevant provisions of the Applicable Law, as well as, with respect to such Personnel, any such life, health, accident, travel or other insurance as may be appropriate; and
	(e) insurance against loss of or damage to (i) equipment purchased in whole or in part with funds provided under this contract, (ii) the service provider's property used in the performance of the Services, and (iii) any documents prepared by the service provider in the performance of the Services.
	(f) All risk Insurance coverage (war, riots, civil commotion) including fire,

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Number of GC Clause	Amendments of, and Supplements to, Clauses in the General Conditions of Contract
	floods, lightning and burglary with a minimum coverage to 110% of the contract value.
3.8.1	The liquidated damages is applicable for delays beyond the last date specified for commissioning of services for use at the rate of 1 percent (1%) per day.
	The maximum amount of liquidated damages for the whole contract is Ten percent (10%) of the total Contract Price.
3.8.3	In the event of any defective performance from the Service Provider or failure to furnish the agreed level of service, the Service provider will make reasonable efforts to restore the service to the required operating condition on an urgent basis. A penalty as stipulated in the Service Level Agreement (SLA) will be imposed in the case of defective performance or failure to provide the agreed level of service to resolve the issue.
5.1	The assistance and exemptions provided to the Service Provider are: None
6.2	The total contract amount:
	in Sri Lankan Rupees is ....
	in Foreign Currency is ....
	(for a period of 12 months from the date of commissioning unless terminated earlier).
6.3.2	The performance incentive paid to the Service Provider shall be: Not applicable
6.4	Payments shall be made according to the schedule given in Appendix B – Schedule of Payments.
6.5	Payment shall be made within 60 days of receipt of the invoice and the relevant documents specified in Sub-Clause 6.4, and within 90 days in the case of the final payment. (refer Appendix B)
7.1	The principle and modalities of inspection of the Services by the Employer are as follows: Refer Appendix A – Description of Services
7.2	The Employer reserves the rights to encash the performance security for the lack of performance
8.2.1	The Adjudicator will be appointed in agreement with both Employer and the Service Provider. If any disagreement arises in appointing an Adjudicator, both Employer and the Service Provider shall agree to have the university of Moratuwa to appoint an Adjudicator on behalf of both Employer and the Service Provider.
8.2.3	The hourly rate payable to the Adjudicator shall be Sri Lankan Rupees Fifteen thousand (LKR 15,000)
8.2.4	Arbitration shall be heard in Sri Lanka in accordance with the Arbitration Act of Sri Lanka.

Section VIII. Performance Specifications and Drawings

Refer Appendix A – Description of Services

Section IX. Contract Forms

Table of Forms

Performance Bank Guarantee (Unconditional)

Performance Bank Guarantee (Unconditional)

To: _____

Whereas _____ (hereinafter called "the Service Provider") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ (hereinafter called "the Contract");

And whereas it has been stipulated by you in the said Contract that the Service Provider shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

And whereas we have agreed to give the Service Provider such a Bank Guarantee;

Now therefore we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Service Provider, up to a total of _____, _____, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____*]* as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Service Provider before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Services to be performed there under or of any of the Contract documents which may be made between you and the Service Provider shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.

This Guarantee shall be valid until a date 28 days from the date of issue of the Certificate of Completion.

Signature and seal of the Guarantor _____

Name of Bank _____
Address _____
Date _____

Advanced Payment Bank Guarantee

_____ *[Bank's Name, and Address of Issuing Branch or Office]*

Beneficiary: _____ *[Name and Address of Client]*

Date: _____

ADVANCE PAYMENT GUARANTEE No.:   _____

We have been informed that *[name of Service Provider]* (hereinafter called "the Service Provider") has entered into Contract No. *[reference number of the contract]* dated *[insert date]* with you, for the provision of *[brief description of Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum of *[amount in figures]* (*[amount in words]*) is to be made against an advance payment guarantee.

At the request of the Service Provider, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* (*[amount in words]*)[1] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Service Provider is in breach of their obligation under the Contract because the Service Provider has used the advance payment for purposes other than toward providing the Services under the Contract.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Service Provider on their account number _____ at *[name and address of Bank]*.

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[1]

The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Client.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Service Provider as indicated in copies of certified monthly statements which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of the monthly payment certificate indicating that the Consultants have made full repayment of the amount of the advance payment, or on the __ day of _____, ___,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

_____

[signature(s)]

Note: All italicized text is for indicative purposes only to assist in preparing this form and shall be deleted from the final product.

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[2] Insert the expected expiration date. In the event of an extension of the time for completion of the Contract, the Client would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Client might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], 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."

Description of Services

Implementation of Web Based Spatial Data Management System for National Spatial Data Infrastructure (NSDI) in Sri Lanka for NSDI - ICTA/GOSL/SER/NCB/2016/77

1. Introduction

The purpose of this document is to solicit proposals by companies or consortia that are qualified to implement the Sri Lanka National Spatial Data Infrastructure (SL-NSDI) GeoPortal, supporting GIS, a central data repository containing selected existing data, and a demonstration program highlighting the potential benefits of the SL-NSDI and the functional capabilities of the GeoPortal. The purpose of this project is to establish the technical infrastructure required to initiate and demonstrate the utility of a GeoPortal as one important component of the overall SL-NSDI program. This is one of several projects that are being undertaken to implement the various technical and institutional components of the broader program that are required to establish a fulling operational SL-NSDI capacity in the Country. It is expected that this project will be carried out over a 4-5 month period.

2. Background

Effective and efficient decision making is one of the key factors for a productive government service delivery process and to ensure the good governance. National Spatial Data Infrastructure (NSDI) is a platform for sharing spatial data across the organizations and supports suchorganizations to make decisions more effective and efficient using up-to date and real-time evidence.

Ministry of Lands is the main stakeholder for the National Spatial Data Infrastructure. In addition, Department of Surveys, Land Commissioner General, Registrar General, Ministry of Environment, Ministry of Wildlife, Ministry of Agriculture and Ministry of Disaster Management have also been identified as key other stakeholders for this initiative.

At present, spatial data sets are collected by a number of organizations and institutions in isolation and only serving individual organizations' purposes but not for considering the expectations and requirements of other stakeholders. These data sets are managed in closed systems and this has created a multitude of information silos. As a result, these data systems are not accessible by other organizations. Also, it is difficult to understand what information is available and where it is stored. This has led to redundant effort and several organizations have been collecting the same information because they are unaware that the types of information they need already exist.

Organizations across the government sector recognize that current processes are inefficient and that more collaboration across the sector is required. However, existing data sharing policies and standards are not sufficient to support effective collaboration. There is a significant paper trail of agreements that need to be processed before data sets can be transferred from one organization to another. Manual data sharing procedures

contribute to delay in sharing, and the effort required to manually integrate updates from one agency to another is labour intensive and time consuming.

Further, under the present infrastructure facilities available, it is possible to effectively create a platform to share spatial information between organizations as well as among the broader community.

Prior to establishing NSDI infrastructure solution, ICTA is conducting a comprehensive baseline study to assess the present situation of collection, storing and usage of national spatial data across the organizations and overall readiness of the staff and organizations to adopt and effective use of the system. This information is being further analyzed to develop a detailed Requirements Analysis that will provide the basis for a detailed Request for Proposal (RFP) that will be used in a subsequent stage to the current effort to invite competitive bids by qualified firms or consortia to provide the additional services that will be needed to establish an operational SL-NSDI capacity in Sri Lanka.

3. Concise statement of the objectives

The primary objectives of the Sri Lanka NSDI GeoPortal Implementation Project are as follows:
- Raise awareness about the SL-NSDI and the role of the GeoPortal, metadata catalog and GIS technology in responding to critical issues in Sri Lanka
- Development and compilation of metadata of the initial data sets provided by the key stakeholders;
- Installation and compilation of meta data catalogue and demonstrate how this catalog can be used for data discovery;
- Installation and configuration an initial GeoPortal to support the discovery of, and access to and visualization of spatial data and application services by the stakeholder community;
- Collect, process and publish selected existing GIS data layers and derivative of products within the GeoPortal environment, with suitable content and cartographic design;
- Conduct stakeholder capacity building to the identified stakeholders in coordination with ICTA.

4. Scope of work

The following provides a summary of the primary activities to be carried out in the implementation of the SL-NSDI GeoPortal. These are indicative only, and it is up to each bidder to provide a more detailed description of all the specific tasks required to achieve the stated project targets and deliverables as per below stated tracks. These activities are divided to Tracks in the explanation below to delineate interdependent clusters of activities that may be carried out in parallel.

Track 1 – Geoportal & Website

This Track will involve the detailed physical Installation and configuration of the SL-NSDI GeoPortal, supporting GIS environment and accompanying website. The website will provide a framework for explaining the program, providing access to certain resources (standards, training programs, etc.) and supporting two-way communications channels with the community and the public. The GeoPortal will provide access to common data and application services and is supported by a foundation GIS geoprocessing capability required to build, use and manage the demonstration geospatial data repository. Both will be structured in part to respond to the awareness program requirements being defined in Track 3. These applications will be configured and hosted within the ICTA Government Cloud environment. The minimum requirements and specifications for the GeoPortal and Website are provided in Annex A and B respectively. A description of the ICTA Government Cloud environment is provided in Annex C. This track will involve at a minimum the following activities:

Website design and development. The Contractor will be responsible for the Installation and configuration of the SL-NSDI website (Please refer Annexure E for reference). Demonstration of prototype will be required before system implementation. This will include a landing page, an easy to understand and use interface for accessing the GeoPortal and other program resources as outlined in Annex A. It will also include multi-lingual content describing the SL-NSDI program, its benefits, participants and avenues for involvement. The content is to be developed by the Contractor as discussed in Track 3 and Annex B. Additional content summarizing the program, the GeoPortal and case study "stories" will be derived from activities in Track 3. The contractor is to produce a draft website design for review and comment by the project committee. Feedback from this review will be considered in the development of a final design that will be accepted by the committee prior to initiating website implementation. The draft website and associated content will also be reviewed by the project committee. Feedback received will be considered in the refinement of the website for final review and approval by the committee. Once finalized, the contractor will expose the site for general internet access.

GeoPortal customization and installation. The GeoPortal customization will include the physical customization and installation of the GeoPortal and supporting GIS environment based on the system specifications and data model that is provided in Annex A of this document. This includes the establishment of the underlying GIS foundation system, metadata management and search tools, a map viewer and the design and publishing of map services in a form that can best demonstrate the utility and power of the SL-NSDI (Please refer Annexure E for reference). Demonstration of prototype will be required before system implementation. The identification and collection of the data services to be included in the GeoPortal and how these are to be presented will be defined out in Track 3. The contractor is to produce a draft GeoPortal configuration design for review and comment by the project committee. Feedback from this review will be considered in the development of a final design that will be accepted by the committee prior to initiating GeoPortal implementation. The draft GeoPortal and associated data and metadata content will also be reviewed by the project committee. Feedback received will be considered in the refinement of the GeoPortal for final review and approval by the committee. Once finalized, the contractor will expose the GeoPortal for general internet access.

Track 2 – Data Repository

This track will involve the collection, compilation, integration and documentation of selected existing GIS data layers to a centralized repository for use in the GeoPortal. Activities in this track will include the following at a minimum:

Data collection, compilation and integration. The Contractor will be required to collect selected GIS data which could be in the format of 2D, 3D and Time from the custodians and to process this information to a form that can be used effectively to demonstrate the GeoPortal environment and it role in supporting the SL-NSDI. This will include integration of these data within the same projection/datum and other processing as needed for these information to be used together for analysis and display purposes. The specific datasets to be collected will be identified in Track 3. It is estimated that this effort will involve 25-30 layers of information at 3-4 geographic levels/scales, as needed to demonstrated different types and levels of applications and system functionality as defined in Track 3. The contractor will be responsible for providing a draft Data Plan listing the data being collected, any processing or further data manipulation or analysis to be conducted and specification of the final structure of the data as it will appear in pilot data repository. The draft plan will be submitted to the project committee for review and comment. Feedback received will be considered in the development of a final plan for approval by the committee prior to implementation. The contractor will thereafter proceed with implementing the plan, resulting in the development/installation and configuration of the pilot GIS data repository as specified.

Metadata catalog development. The Contractor will be responsible for populating the full metadata catalog for all the datasets being included in the GeoPortal demonstration database. The vendor is responsible for developing the metadata and populating metadata catalogue complying with ISO 19115, populating the core metadata elements specified in the standard. The contractor will be responsible for providing a draft metadata catalog within the GeoPortal. The draft catalog will be submitted to the project committee for review and comment. Feedback received will be considered in the development of a final catalog for approval by the committee prior to this information being exposed through the GeoPortal on the internet.

Track 3 – stakeholder outreach and communications

A key purpose for the early implementation of the SL-NSDI GeoPortal is to build awareness among the leadership and stakeholder community as to the utility and positive impact of the NSDI program. An outreach component of the current project is conceived to maximize the awareness building potential of the website and GeoPortal. This track will involve at a minimum the following activities:

Demonstration program design. The Contractor will be responsible for conceptualizing, designing and implementing an awareness program focusing on the SL-NSDI website and GeoPortal including metadata discovery. This will need to be carried out in alignment with other outreach and awareness activities that are being conducted by the ICTA. This activity will include, but not be limited to the following tasks:
- Review existing SL-NSDI outreach and awareness materials;
- Identify the key themes to be highlighted in the website and GeoPortal. These will include various "stories" that can be told to highlight how the SL-NSDI will

contribute to areas of national and local concern as well as demonstrate the capabilities of the GeoPortal. It is expected that this may include 4-5 thematic stories that could include, but not be limited to cadastral application, disaster management, agricultural development, smart city, education, and tourism themes;

- Confirm data availability from the custodians (see next activity);
- Develop content storyboard for website and GeoPortal;
- All of the above to be carried out in consultation with the SL-NSDI stakeholder representatives;
- Program design to be reviewed and approved by project committee (draft and final).

GeoPortal demonstration program design and development. The Contractor will be responsible for the detailed design and development of the demonstration program for the GeoPortal. This will be an interpretation of the storyboard created in the previous activity that will identify what important themes to emphasize and how this information can best be presented in the GeoPortal. Specific activities to be carried out at a minimum include:

- Identification of what existing data layers are needed at multiple scales/levels to address the target themes. This information will be used to guide the data collection efforts outlined in the data repository development track;
- Identification of combinations of GIS data layers and their symbolization, tabular queries and other functionality that can be featured to tell the story associated with each theme;
- Design and documentation of a process for the effective demonstration of the case study stories and GeoPortal technical capabilities.
- GeoPortal program design to be reviewed and approved by project committee (draft and final).

SL-NSDI Program, GeoPortal and Case Study Briefing. The Contractor will be responsible to develop an MS PowerPoint-based briefing about the SL-NSDI program, its components, plans, current status and the case study story examples that are supported by the GeoPortal. The briefing is to be designed in a modular manner such that it can be easily reconfigured to meet the needs of different types and levels of audiences. One detailed module will be fully dedicated to explaining the purpose and functions of the GeoPortal. In addition to a standalone version of this material, the information will be further consolidated by the contractor and integrated into the SL-NSDI website. The contractor will be responsible for developing a draft of the full briefing for review and comment by the project committee. Any feedback from the committee will be considered for refinement of the briefing material for final approval by the committee.

Track 4 – Training and Capacity Building

The Contractor will be responsible for providing the basic technical training and capacity building exercises that will enable the government staff to operate and maintain the website and GeoPortal following implementation. The implementation of the full NSDI operational capacity in a subsequent stage will include a comprehensive training and capacity building program, therefore this project will focus only on those specific roles and skillsets that are needed to administer the installed system in the meantime. Contractor should indicate how this is to be achieved, addressing both formal classroom instruction and on-the-job training

activities that may be required. The contractor will be responsible for producing a training plan for review and comment by the project committee. Feedback from the committee will be considered in the refinement of the plan by the contractor for final approval by the committee. The contractor should provide the number of training programs planned to conduct and target audience.

5. Qualification of Contractor

The proposal submission should clearly describe the qualifications of the Contractor or Consortium and its previous experience and capacity to address all elements of the scope of work outlined in this TOR and accompanying annexes.

General

Provide an overview of the company, its history and core competencies. If a consortium, provide a similar summary for each entity involved, and identify what role they would play in the current SL-NSDI GeoPortal implementation project.

Projects of a Similar Nature and Scope

Provide a listing and summary description regarding each project or activity previously conducted that is of a similar nature and scope as the proposed SL-NSDI GeoPortal program.

Project information should include at a minimum:
- Project name;
- Project description;
- Project owner name;
- Identify what parts of each project are comparable or otherwise relevant to the SL-NSDI GeoPortal implementation program;
- Total project budget;
- If partial involvement by Contractor, indicate amount of budget applied to Contractor works;
- Provide project referral contact information;

Project Organization & Key Staff

Provide a complete description of the project team and how it would be organized into each track as described in scope of work. Also provide the qualifications of key staff who would be involved in the project, including direct references to projects and activities that have direct relevance to the current project.

For reference, the government expects the following skillsets to be present in the team, at a minimum. Indicative minimum experience expected for each role is listed in Annex E.

- Project Manager.
- Senior Technical Consultant(s)
- GeoPortal Specialist.
- GIS Data Analyst(s).
- GIS Data Conversion Specialist(s).

- Website Developer
- GIS Cartographer.
- Outreach and Communications Specialist(s).

Project Management Approach and Methodology

Provide a summary description of the approach that would be used to manage the current project.

a. Explain your technical understanding of the objectives of the assignment. You should highlight the problems being addressed and their importance, and explain the technical approach you would adopt to address them. You should also list the potential standards, protocols & specifications you may adopt and highlight the compatibility of these with the proposed architecture.

b. In order to illustrate the feasibility of your proposed approach & methodology please provide detail description on the following. Also you should submit supporting documents wherever possible.

Describe experiences in similar consultancy services with the following components:

I. Please provide details explaining your past project(s) considering implementation methodology.
II. Leveraging open standards/ open protocols and interoperability
III. Enterprise layered architecture for development
IV. Elaborate how you have ensured high-availability, scalability and fault tolerance of the implemented solution(s)
V. Elaborate use of any monitoring tools for maintainability
VI. Elaborate the security and performance considerations in aforementioned projects
VII. Degree of in-house SQA standards and procedures
VIII. Elaborate support and maintenance experience
IX. Elaborate cloud deployment experience

6. Approach, Outputs and Deliverables

The contractor is required to submit the following list of deliverables for the NSDI project.

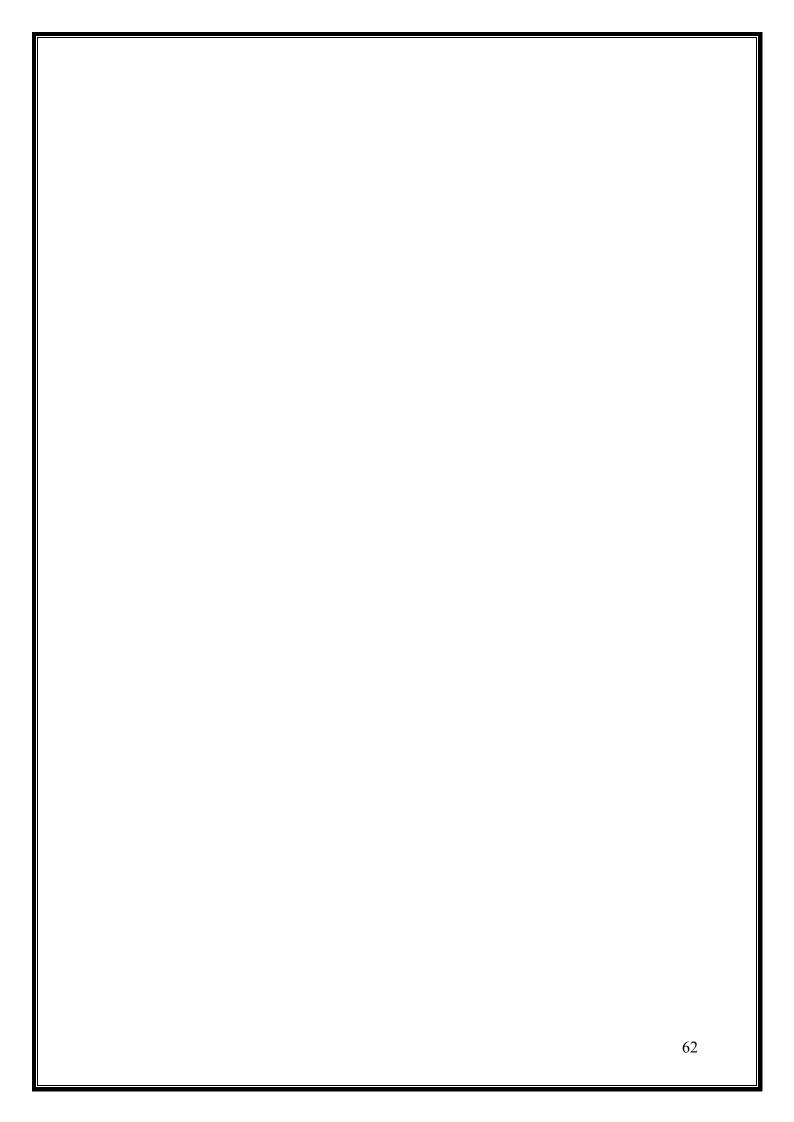| Deliverables	Timeline
General	
Project plan	Commencement date + 2 weeks
Inception report	Commencement date + 2 weeks
Implementation road map	Commencement date + 2 weeks
Design and deployment architecture	Commencement date + 2 weeks
Hardware requirement	Commencement date + 2 weeks
Operational Acceptance Criteria	Commencement date + 2 weeks
Operational Acceptance Report	Commencement date + 6 months
Track 1	

SL-NSDI Website draft design (Prototype)	Commencement date + 3 weeks
SL-NSDI Website with content (draft and final)	Commencement date + 3 weeks
GeoPortal draft design	Commencement date + 4 weeks
GeoPortal draft system (Prototype)	Commencement date + 5 weeks
GeoPortal system (internet accessible)	Commencement date + 2 months
Test plan	Commencement date + 2 weeks
UAT test cases	Commencement date + 2 months
UAT Report	Commencement date + 6 months
Track 2	
Data collection requirement report	Commencement date + 2 months
Data Plan (draft)	Commencement date + 1 month
Data Plan (final)	Commencement date + 2 month
Data Repository GIS Database	Commencement date + 2 months
Metadata catalog (draft)	Commencement date + 2 months
Metadata catalog (final)	Commencement date + 4 months
Data collection status reports	Commencement date + 2 months
Track 3	
Outreach Plan	Commencement date + 3 weeks
Demonstration program design (draft and final)	Commencement date + 6 weeks
GeoPortal program design (draft and final)	Commencement date + 3 months
GeoPortal content additions (draft and final)	Commencement date + 4 months
SL-NSDI Program, GeoPortal and Case Study Briefing (draft and final)	Commencement date + 3 months
Outreach content	Commencement date + 4 months
Track 4	
Training plan (draft and final)	Commencement date + 2 months
Training sessions	Commencement date + 5 months

7. Client's Inputs

- Required coordination to collect data from stakeholder organizations will be provided by ICTA based on the output provided by the requirement study consultant.
- Cloud infrastructure will be provided for the service provider to configure and implement proposed infrastructure.

8. Procedures for Review of Outputs

ICTA will appoint a review committee to review and sign off the deliverables.

9. Compliance List – Functional Requirements

9.1 GIS Functional Requirements (Note: Refer Track 1 and Annex A - GIS Functional Specification for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document

GIS-1	Geo processing tools	Which needed to compile, manipulate, integrate and visualize existing GIS data needed to support the GeoPortal establishment and demonstration project. Basic functions include, but are not limited to the listing below:
		
		• Basic aspatial/spatial data capture
		  ➢ Digitizing
		  ➢ GPS
		  ➢ Tabular data entry
		
		• Processing
		  ➢ Coordinate transformation tools (Map projection etc.)
		
		• Data format conversion
		• Quality assurance and quality control (QA/QC)
		  ➢ code consistency analysis,
		  ➢ valid range checking,
				2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document

		➢ topology checks
		• Basic geospatial analytics
		  ➢ Buffer
		  ➢ Overlay analysis
		  ➢ Network analysis
		• 3D analysis and visualization
		• 3D data modeling
		  ➢ topographic features
		  ➢ geographic features
		  ➢ statistical surfaces
		  ➢ Surface generation
		  ➢ Topographic analysis
		  ➢ Landscape 3D visualization
		• Urban 3D visualization
		• Statistical 3D visualization
		• Remote sensing image processing
		  ➢ Change Detection
		  ➢ Ortho-rectification
		  ➢ Spectral Analysis
		  ➢ Image Classification						

9.2 Geoportal Functional Requirements (Note: Refer Track 1 and Annex A - Geoportal Functional Requirements for additional information)

9.2.1 General Requirements

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
GP-1	User Interface	• Multi-lingual interface(Singhalese, Tamil, English)	1		Mandatory			
GP-2	User Interface	• DBMS should support for the Unicode	1		Mandatory			
GP-3	User Interface	• User friendly interface for discovery and access to geospatial data and metadata	1		Mandatory			
GP-4	User Interface	• Should adhere to ISO/OGC presentation requirements	1		Mandatory			
GP-5	Central Metadata Repository	• Support updating of central metadata repository from distributed sources	1		Mandatory			
GP-6	Central Metadata Repository	• Should equip with metadata harvesting tools	1		Mandatory			
GP-7	Metadata Catalogue	• Efficient management of geospatial metadata	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
GP-8	Metadata Catalogue	• Support exchange of metadata with other GeoPortal nodes	1		Mandatory			
GP-9	GIS viewer application	• Provide a GIS viewer application with basic map navigation, data query and map output capabilities	1		Mandatory			
GP-10	GIS viewer application	• Support OGC standards of publishing spatial data as WMS, WFS	1		Mandatory			

9.2.2 GeoPortal Management and Administration

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
GM-1	Access to public data	Allow general public users to access the system public data without user authentication	1		Mandatory			
GM-2	Payment Gateway	GeoPortal should consist of functions to integrate a payment gateway and integration should be done by contractor		2				

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
GM-3	user authentication	• Support user authentication for registered users per their authorization level or role via the ICTA single sign-on system • Authenticated privileged users must be able to access public and secured map services • Allow registered data publishers to access and update the metadata records they are responsible for • Provide metadata harvesting tools to allow the GeoPortal administrator to automatically or on an as-needed basis retrieve new or updated metadata records from preregistered data publishers for posting; • Provide metadata harvesting tools to allow the GeoPortal administrator to automatically or on an as-needed basis retrieve new or updated metadata records from preregistered data publishers for posting; • ability for GeoPortal administrator to set and control access rights		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		including what data can be viewed, in what form (WMS, WFS, etc.), what can be downloaded directly from the GeoPortal, or referred by email to the publisher for a physical copy of the data • Monitor GeoPortal utilization and provide reporting on periodic and as-needed basis • Make GeoPortal metadata available for discovery by others						
GM-4	metadata harvesting tools	Should be able to harvesting using ASCII and XML/ GML formats		2	Mandatory			
GM-5	Metadata validation tool	• Metadata element validation, • metadata content validation, • thesaurus validation, • keyword validation • Validate compliance of metadata according to the international standards as well as the specific standard customized and adopted by the SL-NSDI. If not automatically notify the data publishers		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		• Review and approve submitted metadata prior to publishing						
GM-6	Access to GeoPortal metadata records	Support provision of access to GeoPortal metadata records by other applications such as RSS readers, wikis and content management systems		2	Mandatory			
GM-7	GeoRSS feed	Provide GeoRSS feed that will automatically notify subscribed users when metadata records matching their specific interests are added to the GeoPortal		2	Mandatory			

9.2.3 End User Functional Requirements

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
EU-1	Maintain the metadata records	Provide authorized data publishers with the tools to develop and maintain the metadata records for data for which they are the authorized custodian		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
EU-2	Search methods	Provide both simple and advanced search methods by • key-words • themes • geographic area of interest	1		Mandatory			
EU-3	Summary results of metadata	• Display summary results of metadata search including a thumbnail image for each selected dataset in an easy to read and understand form. Allow the user to expand any individual metadata record to access the full information • accommodate the ability to add any referenced layer to a map view and to incrementally add additional layers from one or more metadata searches to that same view during a single session;	1		Mandatory			
EU-4	Ability to download a selected data layer	Provide the ability to download a selected data layer in different format to restrict the download function to specific authorized roles and within predefined geographic area limits;		2	Mandatory			
EU-5	Discovery, query and map preview	Support discovery, query and map preview of metadata published by others		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
	of metadata							
EU-6	Access web map services	Allow users to access web map services from other online publishers utilizing OGC web map publishing standards		2	Mandatory			
EU-7		GeoPortal software should support access and viewing by multiple map viewer technologies, including server side development		2	Mandatory			

9.2.4 Map Viewer Navigation

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVN-1	Zoom in	This tool enables the user to magnify a specific area of interest on the map to get a more detailed view of the area.	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVN-2	Zoom Out	This tool enables the user to reduce the scale of the displayed map and so the user can view more areas with fewer details through scale dependent display	1		Mandatory			
MVN-3	Full Extent	This tool will enable the user to view the default map centered on the screen and displayed in the default map scale.	1		Mandatory			
MVN-4	Pan	This tool will enable the user to navigate through the map to change the displayed area without changing the map scale	1		Mandatory			
MVN-5	Previous	This tool enables user to move back to the previous view while navigating the map. To use this tool, it is required that at least one navigation interaction took place on the map within the existing work session	1		Mandatory			
MVN-6	Next	This tool enables user to move forward to the next view while navigating the map. To use this tool, it is required that at least one "View Previous" action took place on the map within the existing work session.	1		Mandatory			

9.2.5 Map Viewer Tools

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-1	Identify tool	Application shall have Identify tool in the map navigation tool bar. The tool shall be used to perform the identify operation. User shall select the Identify tool from the navigation tool bar and click on a feature(s) on the map view. The tool shall display the attribute information of the feature(s) from the preconfigured layers in selected location. The selected features should be highlighted on the background.	1		Mandatory			
MVT-2	Mouse Hover	Application shall have mouse hover functionality, when the user moves the mouse over a map feature, a tooltip shall be displayed with the attribute information of the feature. This function will work on predefined layer(s) as per the configuration.	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-3	Legend	Application shall show map legend with all the symbols of the map services on the current displayed map. The map services legend shall be displayed as part of Table of Contents. User can expand/collapse map services in TOC to show/hide the symbology;	1		Mandatory			
MVT-4	Map Overview	Application shall have an option of map overview through which the main display range will be shown to the users for the purpose of better view and control;	1		Mandatory			
MVT-5	Go To Point Option	Application shall have an option of "Go to point" through which the following operation can be performed: • User shall input X/Y or Latitude / Longitude in the UI and shall be able to navigate to specific point on the map. • X/Y or Latitude / Longitude shall be provided in WGS84 Format.	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-6	Layers Display & Table of Content	Layers Display & Table of Content - System shall have an option to display list of layers appearing on the current map in Table of Contents (TOC) control. User shall be able to perform following operations through TOC control. • User will be able to turn layers on / off as required. • Remove any map services from the map • User shall save and reload the Table of Content created in the previous time.	1		Mandatory			
MVT-7	Scale bar	Application shall show the map scale bar, which interactively displays the current scale of the map. The scale bar control shall be placed at lower left side of the map.	1		Mandatory			
MVT-8	Base Map Toggle	Application shall provide an option to toggle basemaps between satellite image and vector map.	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-9	Add Map Service	Application shall provide an option to add map service, where user can add a map service in following ways: • Add map service using valid URL. • Add map service from the list of predefined servers. For the selected server, the list of map services shall be displayed. User shall select the required service from the list add it to the map.		2	Mandatory			
MVT-10	Measurement	Application shall provide an option to measure point, line and area on the map. ▪ User shall measure distances and perimeter by drawing a line either in meters or in Kilometers based on the selection of units from the dropdown list. ▪ User shall measure areas on the map by drawing a polygon either in square meter or in	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		square kilometers. ▪ User shall measure coordinate information of a location by clicking on the map. Point will be measured in decimal degrees or DMS. User shall select the measurement unit from the dropdown list. ▪ Coordinate information shall be displayed in WGS 84 format.						
MVT-11	Redlining	Application shall support the following redlining operations on the map. User shall able to select any of the following available tools and perform the required operation. • Drawing a sketch using Freehand format • Drawing a Point • Drawing a Line • Drawing a Polygon • Writing a text on the map • Clearing the drawing redlines from the map		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		• Modify/delete the drawn redline objects						
MVT-12	Metadata Search	Application shall provide the ability to search for metadata keywords and navigate to search results as appropriate;	1		Mandatory			
MVT-13	Advanced Search	Application shall provide "Advanced Search" tool where user shall be able to search the selected map service layer by building any custom query on the fly. • User shall select the required map service and layer • All the relevant fields shall be displayed in a dropdown • User shall build a custom query using the fields and conditions like Equals, not equals, Contains, Less than, greater than and providing appropriate values for the fields	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		• As per the selections made by the user, system shall perform the query on the selected map service layer. • The corresponding search results shall be displayed in the table format with attributes information and feature count. • User shall select any of the search results from the results table and zoom to the selected feature.						
MVT-14	Advanced Search	User shall select the "export" option to export the results information to an excel file.		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-15	Identify by Geometry	Application shall provide a spatial search tool to query features in a user defined geographical area. • User shall be able to do spatial search by drawing point with buffer zones, polygon and polyline. • The corresponding search results shall be displayed in the table format with feature attributes information. • User shall select any of the search results from the results table to zoom to the selected feature and display attribute information.	1		Mandatory			
MVT-16	Identify by Geometry	User shall select the "export" option to export the results information to an excel file.		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-17	Simple Find Search	Application shall provide a simple search option for querying and displaying the search results • User shall enter the required keyword in the search box and press search button. • The tool shall search for the keyword in the configured layers and display the search results in a tabular format. • User shall select any of the search results from the results table to zoom to the selected feature and display attribute information.	1		Mandatory			
MVT-18	Simple Find Search	User shall select the "export" option to export the results information to an excel file.		2	Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
MVT-19	Email Map	Application shall have an "Email Map" option to send the currently displayed map through email. • User shall activate the email map function and provide following details • Recipients mail ids • Mail Subject • Mail Body Text • Tool shall send an email to the recipients with the current map details with user provided subject and email body.		2	Mandatory			

9.3 Technical Specification (Note: Refer Annex A)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
TS-1	Three tier architecture	SL-NSDI should implement in three tier architecture • Development • Staging • Production	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
TS-2	compatible with cloud services	SL-NSDI system should be compatible with cloud services	1		Mandatory			

9.4 Systems Specifications (Note: Refer Annex A)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
SS-1	Server Software	Server software should provide by the vendor which should comply with the specification given in Systems Specifications table in Annex A	1		Mandatory			
SS-2	Operating System	Operating System should define in the Systems Specifications table in Annex A	1		Mandatory			
SS-3	Server software licenses	For below software and any other software required for phase 1 implementation: • Spatial Database Server • Web Application Server	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		• Web Map Server • Cache(Image) Server • Proxy Server • Server OS with security • Data format exchange server • GIS Desktop (Advanced) • Data Format exchange Workbench						

9.5 Website General Requirements (Note: Refer Track 1 and Annex B - Website General Specification for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
WG-1	Multi-lingual Content	Sinhala, Tamil and English	1		Mandatory			
WG-2	Content Updating	• Long-term ease of content updating needs to be considered to keep the portal information current. • An easy to use Content Management System (CMS) • Should be flexible to update	1		Mandatory			

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ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		web pages • Provide associated training for ICTA staff within the project						
WG-3	Links to participating stakeholder agencies	• Links to participating stakeholder agencies will need to be incorporated and vice versa • Website should be centralized and the communication and exchange of data between the coordinating center and the relevant stakeholder should be through the centralized	1		Mandatory			
WG-4	Professional Design	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-5	accessible to search engine spiders	*Note: For more information please refer Annexure B*	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
WG-6	comply with the standards of accessibility contained in W3C WAI	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-7	Banner Graphic	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-8	Site Map	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-9	About Us	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-10	Organization and Stakeholders	*Note: For more information please refer Annexure B*	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
WG-11	Standards, Products and Services	Provide a summary the products and services that can be accessed through the SL-NSDI website and GeoPortal. *Note: For more information please refer Annexure B*	1		Mandatory			
WG-12	Work With Us	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-13	A-Z Subject Index	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-14	Media Center	Provides access to all past and current press releases and other resources *Note: For more information please refer Annexure B*	1		Mandatory			
WG-15	Frequently Asked Questions	Provide a list of frequently asked questions (FAQ's) and generic answers regarding the SL-NSDI or related initiatives. *Note: For more information please*	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		refer Annexure B						
WG-16	Search	This section will provide a general search function for the entire site *Note: For more information please refer Annexure B*	1		Mandatory			
WG-17	Links to Related Programs	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-18	Time	*Note: For more information please refer Annexure B*	1		Mandatory			
WG-19	Technology News and Events	This section would include a variety of general and specific interest information regarding technological developments and events that are of interest to SL-NSDI stakeholders. • News • Events • Conferences • Visitor Information and Directions	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
WG-20	How to Contact	Should include, • Directory with contact numbers • Email addresses for organizations, • Participating stakeholder agencies, • Key individuals • Webmaster	1		Mandatory			
WG-21	Date last updated	A message should be included on the website that indicated the date created and when the website was last updated.	1		Mandatory			
WG-22	Navigation on secondary pages	Navigation bar is added to the header graphic for all pages after the homepage	1		Mandatory			
WG-23	Customer Survey	Linkage to survey form to solicit input and feedback from the GeoPortal user community		2	Mandatory			
WG-24	Geospatial Portal	Metadata catalog search; Link to map viewer environment	1		Mandatory			

9.6 Data Repository Requirements (Note: refer Track 2 - Data Repository for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
DR-1	Centralized data repository	Should involve the collection, compilation, integration and documentation of selected existing GIS data layers to a centralized repository for use in the GeoPortal	1		Mandatory			
DR-2	Data Collection	The Contractor will be required to collect selected GIS data which could be in the format of 2D, 3D and Time process this information to a form that can be used effectively to demonstrate the GeoPortal environment and it role in supporting the SL-NSDI Integrate these data within the same projection/datum and other processing as needed for these information to be used together for analysis and display purposes. *Note: The specific datasets to be collected will be identified in Track 3 and estimated that this effort will involve 25-30 layers of information at 3-4 geographic levels/scales*	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
DR-3	Draft Data Plan	Providing a draft Data Plan listing the data being collected, any processing or further data manipulation or analysis to be conducted and specification of the final structure of the data as it will appear in pilot data repository. *Note: The draft plan will be submitted to the project committee for review and comment. Feedback received will be considered in the development of a final plan for approval by the committee prior to implementation*	1		Mandatory			
DR-4	pilot GIS data repository	The contractor shall proceed with implementing the plan, resulting in the development/installation and configuration of the pilot GIS data repository as specified once the approval received for final data plan.	1		Mandatory			
DR-5	Metadata catalog	Provide full metadata catalog for all the datasets being included in the GeoPortal demonstration database. Develop the metadata subjected to	1		Mandatory			

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ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		the international standards Provide a draft metadata catalog within the GeoPortal *Note: Draft meta data catalogue will be reviewed by the document review committee and provide review feedback.*						

9.7 Stakeholder outreach Requirements (Note: Refer Track 3 - stakeholder outreach and communications for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
OR-1	Demonstration program design	The Contractor will be responsible for conceptualizing, designing and implementing an awareness program focusing on the SL-NSDI website and GeoPortal including metadata discovery. This activity will include, but not be limited to the following tasks: • Review existing SL-NSDI outreach and awareness	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document

		materials;
		• Identify the key themes to be highlighted in the website and GeoPortal. These will include various "stories" that can be told to highlight how the SL-NSDI will contribute to areas of national and local concern as well as demonstrate the capabilities of the GeoPortal;
		• Confirm data availability from the custodians
		• Develop content storyboard for website and GeoPortal;
		  ➢ Cadastral application
		  ➢ Tourism
		  ➢ Education
		  ➢ Disaster Management
		  ➢ Agriculture
		  ➢ Smart City
		
		Note: Program design to be reviewed and approved by project committee (draft and final).						

OR-2	SL-NSDI Program,	• Develop an MS PowerPoint-based briefing about the SL-	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
	GeoPortal and Case Study Briefing	NSDI program, its components, plans, current status and the case study story examples that are supported by the GeoPortal. • In addition to a standalone version of this material, the information will be further consolidated by the contractor and integrated into the SL-NSDI website.						

9.8 Training Requirements (Note: refer Track 4 – Training and Capacity Building for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
TR-1	Basic Technical Training and Capacity building exercises	• The Contractor will be responsible for providing the basic technical training and capacity building exercises that will enable the government staff to operate and maintain the website and GeoPortal following implementation.	1		Mandatory			

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ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		• Contractor should indicate how this is to be achieved, addressing both formal classroom instruction and on-the-job training activities that may be required.						
TR-2	Training Plan	The contractor should provide the number of training programs planned to conduct and target audience	1		Mandatory			

9.9 Qualification Requirements (Note: refer Qualification of Contractor for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
QR-1	qualifications of the Contractor	Provide the qualifications of the Contractor or Consortium and its previous experience and capacity to address all elements of the scope of	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		work outlined in this Service of Description and accompanying annexes. Provide an overview of the company, its history and core competencies. If a consortium, provide a similar summary for each entity involved, and identify what role they would play in the current SL-NSDI GeoPortal implementation project.						

QR-2	Similar Nature Project Description	Provide a listing and summary description regarding each project or activity previously conducted that is of a similar nature and scope as the proposed SL-NSDI GeoPortal program.
		
		Project information should include at a minimum:
		    ■ Project name;
		    ■ Project description;
		    ■ Project owner name;
		    ■ Identify what parts of each project are comparable or
			1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		otherwise relevant to the SL-NSDI GeoPortal implementation program; ▪ Total project budget; ▪ If partial involvement by Contractor, indicate amount of budget applied to Contractor works; ▪ Provide project referral contact information;						
QR-3	project team	Provide a complete description of the project team and how it would be organized into each track as described in scope of work. Provide the qualifications of key staff who would be involved in the project, including direct references to projects and activities that have direct relevance to the current project. Minimum key staff expected: ▪ Project Manager. ▪ Senior Technical Consultant(s) ▪ GeoPortal Specialist.	1		Mandatory			

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		▪ GIS Data Analyst(s). ▪ GIS Data Conversion Specialist(s). ▪ Website Developer ▪ GIS Cartographer. ▪ Outreach and Communications Specialist(s). *Note: Refer Annex E for additional information*						

9.10 Project Management Approach and Methodology Requirement (Note: Refer Project Management Approach and Methodology for additional information)

ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
PM-1	**Description of Project Management Approach**	• Provide a summary description of the approach that would be used to manage the current project. • Technical understanding of the	1		Mandatory			

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ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document

		objectives of the assignment
		
		• List the potential standards, protocols & specifications that may adopt and highlight the compatibility of these with the proposed architecture
		
		Provide detail description on the following. Also submit supporting documents wherever possible.
		
		Describe experiences in similar consultancy services with the following components:
		
		   X. Please provide details explaining your past project(s) considering implementation methodology.
		  XI. Leveraging open standards/ open protocols and interoperability
		 XII. Enterprise layered architecture for development
		XIII. Elaborate how you have ensured high-availability,						

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ID	Requirement	Content	Phase 1	Phase 2	Type	Comply (Yes/No)	Bidders Comment	Page number of the reference document
		scalability and fault tolerance of the implemented solution(s) XIV. Elaborate use of any monitoring tools for maintainability XV. Elaborate the security and performance considerations in aforementioned projects XVI. Degree of in-house SQA standards and procedures XVII. Elaborate support and maintenance experience XVIII. Elaborate cloud deployment experience						

9.11 Non-functional Requirements

9.11.1 Performance Requirements

The system should be based on service oriented architecture (SOA) with multiple access layers connecting providers and consumers incorporating web applications and service communication tiers.

ID	Feature		Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
PF-1	The GeoPortal shall be available 24 hours a day, 7 days a week (24/7).		1		Mandatory		
PF-2	The GeoPortal shall be available at government offices via the Lanka Government Network, and available for public and private institutions, and citizens, via the Internet. The system shall be able to manage at least 50 concurrent users and it should be scalable up to 1000 concurrent users.		1		Mandatory		
PF-3	System response times for **data search** will be measured as the delay between a key stroke action by the user and the time taken to display the record required by the user, on a client desktop workstation similar to Intel Core Duo processor.	• 90% within 2 seconds • 100% within 3 seconds		2	Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
PF-4	System response times for use of services provided by other systems shall not be included in the response time of the GeoPortal, but the GeoPortal shall provide a log for response times when using services.		2	Mandatory		
PF-5	User should be able to get the support online		2	Mandatory		
PF-6	There should be a separate supporting team for a period of 5 years for providing support of the smooth functioning of the system from the date of commissioning. Service provider must agree with any specified period given by the client for the extension providing support, at the willingness of the client as decided.		2	Mandatory		

9.11.2 Reliability Requirements

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
RL-1	The GeoPortal shall have an uptime of more than 99% of the announced 24/7 availability, measured over any 30 days period. Penalty shall be agreed in the contract for cases	1		Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
	when the Geo-portal down-period exceeds the above limits.					
RL-2	In case of s/w failure of software, recovery response should be within 6 hours and Maximum recovery period should be of 48 hours.	1		Mandatory		

9.11.3 Usability

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
UB-1	The GeoPortal solution shall be able to be used by operators with minimal to average experience with Internet and web browsing.	1		Mandatory		
UB-2	A randomly chosen user of the GeoPortal shall be able to: • Search for an address and have it visualized on a map within 10 seconds • Enter a metadata record in a maximum of 4 minutes • Enter a new user within 5 minutes (undertaken by the Database Administrator)		2	Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
UB-3	The system must provide the option on every page of the complete GeoPortal to view the headings, menus, labels, tooltips, and any software control values in all of the following languages: Sinhala, Tamil and English	1		Mandatory		

9.11.4 Error Handling

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
ER-1	All written software shall be subject to a comprehensive error handling regime, which shall be described in the offer by the bidder.	1		Mandatory		
ER-2	Error and Warning messages shall be informative and identify the error as completely as possible (e.g. identifying the module, the procedure or function, any variables passed to the procedure or function, the identifier of the record being processed at the time of the error, the last SQL statement, if relevant. Server load, server application hanging etc.)	1		Mandatory		
ER-3	All error and warning messages shall be written to the server's Windows Event Log for the GeoPortal.	1		Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
ER-4	Critical errors shall be emailed automatically to all relevant software support personnel.		2	Mandatory		
ER-5	It shall be possible to configure the language (Sinhala, Tamil and English) for Error Messages.		2	Mandatory		

9.11.5 Documentation

ID	Feature	Content	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
DC-1	Software Description Guide	The GeoPortal Software Description Guide shall be provided in the Sinhala, Tamil and English languages, and shall describe the following: • Software development environment (including tools used), • Software compilation details • Implemented software architectural features • Software coding standards		2	Mandatory		

ID	Feature	Content	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		• And any other software details that will be of use for software support or for further development of the GeoPortal.					
DC-2	Deployment Guide	The GeoPortal Deployment Guide shall be supplied in the Sinhala, Tamil and English languages, and shall describe the technical aspects of • installing, • calibrating, and • fine-tuning the GeoPortal software, application performance and database. This guide shall be oriented towards the technical specialist (e.g. system integrator, DBMS administrator).		2	Mandatory		
DC-3	User Manual	The GeoPortal User Manual shall be supplied in the Sinhala, Tamil and English languages, and shall describe and illustrate all system functions.	1		Mandatory		
DC-4	User Manual Updates	The text files containing the original text of the User Manuals shall be organized in such a way that parallel updates in all the languages will be managed easily and consistently. The	1		Mandatory		

ID	Feature	Content	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		update method shall be described by the bidder in the offer.					
DC-5	Help files	Text files used for the Online Help functions and tutorials shall be available for management and parallel update in all the languages. The update method shall be described by the bidder in the offer.	1		Mandatory		

9.11.6 Licensing

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
LI-1	All modules of the GeoPortal shall be able to be scaled-up to the double the amount of users as currently specified, without the need to pay for additional software license fees.			Mandatory		
LI-2	Bidder should supply the following software licenses: • Spatial Database Server • Web Application Server	1		Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
	- Web Map Server - Cache(Image) Server - Proxy Server - Server OS with security - Data format exchange server - GIS Desktop (Advanced) - Data Format exchange Workbench					
LI-3	The supplier shall, at the stage of detailed system design, identify all software packages (whether Commercial or Open Source) that are required as part of the comprehensive solution for the GeoPortal, along with any costs associated with the ongoing use of these software packages. The contracting authority shall reserve the right to obtain software licenses under a separate contract.	1		Mandatory		

9.11.7 System Administration

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
SA-1	The system shall keep a log of all changes to the databases, including: - Database transactions made by the GeoPortal - Database changes made by Database		2	Mandatory		

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
	Administrator					
SA-2	The system shall keep the log of changes for at least 6 months, and then archive it.		2	Mandatory		
SA-3	No user can change the log of changes, not even the Database Administrator.		2	Mandatory		

9.11.8 System Deliverance

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
DV-1	The GeoPortal will be developed in two phases • Phase 1 • Phase 2 The contractor shall be delivered only Phase 1. But, it should be scalable for the phase 2 implementation as defined in the requirement assessment report which will be provided during the inception. Phase 1 GeoPortal shall be tested and accepted (OAT and UAT) prior to installation on the production environment	1		Mandatory		

9.11.9 Security Management

ID	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
SEC-1	The system shall provide System Administration tools for the definition of user roles of • Read-only • Edit and • Editor of the GeoPortal • Database Administrator		2	Mandatory		
SEC-2	Changes to the databases shall only be made by use of the GeoPortal functionality, when system update or by SQL-operations performed by Database Administrator		2	Mandatory		
SEC-3	The GeoPortal shall be able to prevent the receipt of trivial messages from users as well as other kinds of spam		2	Mandatory		
SEC-4	The GeoPortal shall take into account the existing comprehensive firewall protection for connections.		2	Mandatory		

9.11.10 Installation, Testing and Support and Maintenance requirements

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
ITW-1	Installation	The software shall be installed by the supplier at the premises of the ICTA Lanka Government Cloud	1		Mandatory		
ITW-2	Testing	There shall be two stages of the software testing and acceptance: o Operational Acceptance Test (OAT) o User Test (UT) o End User Acceptance Test (UAT)	1		Mandatory		
ITW-3	Test plan	The supplier shall deliver a test plan of all tests to be included in the OAT. The test plan shall contain • A list of test scenarios (test cases) • Detail test cases associated to the scenarios	1		Mandatory		
ITW-4	Test scenario	The supplier shall prepare a list of test scenarios which shall contain a short description of real use cases or workflows to be tested. The list of scenarios shall be approved by review committee	1		Mandatory		

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ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
ITW-5	Test cases	The supplier shall prepare test case specifications and provide them to the review committee for approval. The review committee shall have the right to request modifications to the test case documentation. The review committee shall have the right to use amended and expanded test cases for the User Test and End User Acceptance Test (UAT).	1		Mandatory		
ITW-6	Test cases	The supplier shall prepare test case descriptions for • Functional tests • Test of practical and actual workflows / use cases	1		Mandatory		
ITW-7	Test case content	The test cases shall cover all test scenarios. The description shall be formatted as a step-by-step procedure (check-list), where each step is described by following information • User function • Detailed expected results from the function *Note: Test cases can also be used as*	1		Mandatory		

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		training material					
ITW-8	Web Service Tests	If relevant, the supplier shall use the following SOAP-UI software for the testing of web services: http://www.soapui.org/	1		Mandatory		
ITW-9	Test and training environment	The supplier shall develop testing, training and development environments, separated from the production system.	1		Mandatory		
ITW-10	OAT	The supplier shall perform OAT on all test cases. The OAT shall be documented and accepted by the review committee prior to the installation.	1		Mandatory		
ITW-11	External test possibilities	During the development period, the supplier shall establish a test environment which is accessible from ICTA and others as decided be ICTA	1		Mandatory		
ITW-12	User Test	After installation, a user test shall be performed at ICTA and at least one office or Internet user outside KCA. User test and acceptance shall be done after the training is completed for the relevant ICTA or stakeholder	1		Mandatory		

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		staff.					
ITW-13	Error corrections	Based on the user testing the supplier shall correct the software and install a new version of the software. The user tests shall continue until all errors are removed.	1		Mandatory		
ITW-14	UAT	When all errors are removed, the supplier shall participate in the UAT. The UAT shall take place no more than one week after UT has been completed. The UAT shall be executed at the premises of ICTA and in at least one external office.	1		Mandatory		
ITW-15	Support and Maintenance	The supplier shall provide a comprehensive support and maintenance for one year. The support and maintenance shall cover all software and customized applications that are delivered as part of the software solution and database for the GeoPortal.

The support and maintenance period shall begin once End User Acceptance Test as well as Training | 1 | | Mandatory | | |

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		is complete and approved by review committee.					
ITW-16	Error handling	During the installation, acceptance and support and maintenance period the supplier shall provide corrective services. The supplier shall in the offer present a proposal for error reporting and corrective services, including response times.	1		Mandatory		
ITW-17	Support	The support during the support & maintenance shall be implemented via a three-level support regime 1st level support, by a super-user who can give rapid help to users at ICTA who experience a problem with the system. This requires a person who has very good knowledge of the system, who can understand the problem and give advice on what to do. Many problems can be solved at this level, without making any changes to the SW.	1		Mandatory		

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		• 2nd level support by an analyst who can analyze problems that cannot be solved by the experienced user, or analyze the need for improved functionality in depth. and prepare related specifications for subsequent changes to the source code • 3rd level support by a developer who can make changes to the source code related to removing errors as well as for new functionality					
ITW-18	Locally-based support	The support during the support and maintenance shall be implemented via locally-based first-level and second-level support, while third level support may be provided from outside Sri Lanka.	1		Mandatory		
ITW-19	Maintenance	The supplier is obliged - if requested by ICTA– to enter into a maintenance contract after the support and maintenance period has expired	1		Mandatory		

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
ITW-20	Project source code availability	Maintain project source code for the customized software components in the ICTA Source Code Management system (SCM).	1		Mandatory		
ITW-21	Right to access, modify, further develop and enhance the system at no cost	ICTA or its designated entity (end user) should have the right to access, modify, further develop and enhance the system at no cost to ICTA or its designated entity (end user) for the customized software components	1		Mandatory		
ITW-22	Agree to a non-disclosure agreement	Contractor should signed a Non-disclosure agreement with respect to data provided by stakeholder institutions.	1		Mandatory		
ITW-23	Ownership rights	The Contractor shall provide to the client the ownership rights in respect to the client specific components of the system through a source code management repository designated by the client, provided there exist no license restrictions affecting transfer of such ownership. The ownership rights in respect of client specific components may be shared between the client and the consultant at the discretion of client.	1		Mandatory		

ID	Capability	Feature	Phase 1	Phase 2	Type	Bidder's comments	Page number of the reference document
		Client specific components shall mean: 1. Licensed software components which are modified to meet the system requirements AND Bespoke applications to meet the system requirement.					
ITW-24	Data ownership authority	After commissioning the contract, stakeholder organizations should have the data ownership authority			Mandatory		

Annex A – GeoPortal and Supporting Systems Specification

The following provides a general description of the functional specifications for the SL-NSDI and supporting systems. This includes specifications for both the GeoPortal as well as the underlying GIS and geoprocessing capabilities that are required to support the development, utilization and management of the data repository and the design and publishing of map services to be accessed by the GeoPortal. It should be noted that while the GIS geoprocessing capabilities specified here are focused on supporting the GeoPortal demonstration system, it is expected that the same GIS platform will need to ultimately support the full functioning of the SL-NSDI Coordination Centre in a subsequent implementation stage. A preliminary high level overview of the expected functions of the Centre is outlined in Annex D. It will be required that bidders of the current project fully qualify how the GIS platform to be provided in the current GeoPortal project will support or can be scaled up to support the full SL-SDI Coordination Centre in the next stage.

GIS FUNCTIONAL SPECIFICATION

The following provides a general minimum specification for the GIS platform that will be needed to support the SL-NSDI GeoPortal establishment and demonstration project. While not all of this functionality may be needed to support the Phase 1 programme, the bidder will need to demonstrate that the provided GIS software will be able to accomplish such functions, or can be effectively extended to do so. The list provided here is indicative only. The bidder must demonstrate the ability of the proposed GIS software to support the full range of SL-NSDI Coordination Centre functions as outlined in Annex D, including advanced geospatial analytical, reporting and visualization capabilities that will be needed to support

- Provide all geoprocessing tools needed to compile, manipulate, integrate and visualize existing GIS data needed to support the GeoPortal establishment and demonstration project. Basic functions include, but are not limited to the listing below:
  - Basic data capture and processing. This refers to software functional requirements for capturing geospatial data either from the field or through the conversion of manual records to digital GIS layers. Once raw data is captured it often must be further processed ensure its quality and to put it in the proper form for use in the GIS. The following summarizes the minimum data capture and processing software functionality that will be required by the Coordination Office:
    - o Digitizing – digitizing is a process of capturing geographic features as points, lines, areas or rasters. Digitizing may be carried out on a specially equipped "digitizing table", scanned/processed, or "heads up" digitized from an image on a monitor;
    - o Tabular data entry – geographic feature attributes may be captured through the manual entry of information through a keyboard. Digital scanning with optical character recognition (OCR) may also be used;
    - o Scanning – scanners provide the ability to capture the image of a map or aerial photograph in a high resolution form from which geographic features can be derived or digitized;

- o Field data capture – Various devices can be used to capture original GIS data in the field. While the Coordination Office is not expected to carry out original data collection, the GIS platform should support the input and processing of these data. Typical sources include:
  - GPS (x,y coordinates captured from global positioning satellites (GPS).
  - Total Station – electronic survey stations
  - Drone – Drones are increasingly being used to capture geospatial data for relatively small areas. This typically involves the capture of overlapping images (similar to a photogrammetric process) from which topographic and building surfaces and orthophotos can be derived.

(Note: field data capturing is required only when there are gaps in the existing data sets with the stakeholders)

- Processing – raw information that is captured through field capture, scanning or digitizing often needs to be further processed to prepare the data to a form that is ready to support user applications.
- Data format conversion. Many GIS systems use their own data formats and there are international standards for a variety of "open" standards. It will be important that the Coordination Office have the ability to accept data in any standard, convert it to a format for use in the Data Clearinghouse and GeoPortal, and to be able to output it to any other format that a stakeholder may request. There is also a requirement that the format conversion software can be automated to accept and process data from custodians and to output data when requested by stakeholders.
- Quality assurance and quality control (QA/QC) – certain functions are required to conduct quality assurance and quality control checks to ensure the final data meet content, accuracy and format standards. These include code consistency analysis, valid range checking, topology checks, and others;
- Basic geospatial analytics. This refers to a wide range of basic geospatial analytical capabilities that will provide the Coordination Office with a functional foundation to support a broad range of special project requirements. These foundation geospatial analytic software functions that will be required by the Coordination Office include, but are not limited to the following:
  - o Buffer - generate a new polygon by buffering from points, lines or areas based on user-defined distance;
  - o Overlay analysis – overlay multiple map features to identify associations. There are many different types of overlay analyses including:
    - use one object to select other objects that fall within or intersect with its boundary (e.g. plots within a flood zone);
    - intersect multiple layers to produce a new layer that combines all the features and attributes of the input layers (e.g. combination of soils, slope, vegetation, landuse and flood zones that can be modeled to determine best areas for housing development);

- o Network analysis – analyze movement and routing along a network of connected lines. This could be a road network, hydrology network, electrical, water and other utility networks, etc. Types of network analysis that will be required include:
    - shortest path (e.g. find shortest distance between two points on a network considering network distance alone);
    - best route (e.g. find an optimum route based on multiple factors);
    - closest facility (e.g. find the closest hospital);
    - allocation (e.g. 3 minute drive times from fire stations);
    - location/allocation (e.g. find best sites for facilities based on most efficient access to demand points);
    - origin/destination (OD) matrix (e.g. model traffic based on where vehicles are likely to come from and travel to;
    - network trace (e.g. identify what customers will be affected by a the shutoff of part of the water network needed to fix a broken pipe).
- 3D analysis and visualization. There are a wide range of three-dimensional analysis and visualization tools that will be needed by the Coordination Office. These tools are useful to analyze factors that cannot be modeled or visualized on a two-dimensional map. Those 3D analysis and visualization software functions that will be required by the Coordination Office include, but are not limited to the following:
- 3D data modeling – GIS data can be modeled in 3D by including the "z" (or elevation) coordinates for the GIS features. This may include:
    - o topographic features (such as topographic elevation contours, digital elevation models, LiDAR);
    - o geographic features (buildings, utility pipelines, roads);
    - o topographic surfaces (digital elevation models (DEM), digital terrain models (DTM), triangular irregular networks (TINS);
    - o statistical surfaces (based on statistical sample data at distributed locations);
    - o Surface generation – The GIS software should be able to construct a 3D surface based on regular or irregular sets of points and/or lines to generate surfaces and surface representations such as those topographic features and surface type listed above.
    - o Topographic analysis – Derived characteristics of the topographic surface of an area which can include:
        - topographic slope;
        - hillshade;
        - solar aspect;
        - watershed boundaries;
        - drainage network;
        - topographic profile sections (vertical profile depiction on a 2D graph).
        - Volumetric analysis – analysis of real or derived 3D objects (e.g. calculation of the volume of a 3D object such as groundwater basin, as

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well as provide the ability to analyze the intersections of multiple 3D objects)

- Viewshed analysis – viewshed analysis is used to determine what areas can be seen from one or multiple viewer locations.
- Landscape 3D visualization – landscape surfaces can be visualized and navigated in 3D form. 2D maps and imagery can also be "draped" on those surfaces to visualize them in 3D form.
  - o Urban 3D visualization – the built environment can be visualized in 3D form at various levels of detail (LOD) that extent from simple block building extrusions based on a building footprint and building height, to a fully articulated architectural model with either texture-mapped or simulated, photorealistic surfaces
  - o Statistical 3D visualization – This includes the representation of geographically referenced statistical information in a 3D surface form. This topic is further explained under the "geostatistical analysis" section presented later.
- Remote sensing image processing. Remote sensing software functionality is required to process remote sensing data. Remote sensing applications are similar to graphics software, but they enable generating geographic information from satellite and airborne sensor data. Remote sensing applications read specialized file formats that contain sensor image data, georeferencing information, and sensor metadata. Remote Sensing applications perform many features including:
  - o Change Detection — Determine the changes from images taken at different times of the same area
  - o Orthorectification — Warp an image to its location on the earth.
  - o Spectral Analysis — For example, using non-visible parts of the electromagnetic spectrum to determine if a forest is healthy
  - o Image Classification — Categorization of pixels based on reflectance into different land cover classes (e.g. Supervised classification, Unsupervised classification and Object Oriented Classification)
- Provide the tools to compose cartographic design of each layer and publish online map services for access through the SL-NSDI GeoPortal. Basic cartographic design functions should include at a minimum:
  - o Thematic representation of points, lines and areas based on attribute information;
  - o Display both vector and raster graphical information together;
  - o Full symbol libraries for cartographic presentation;
  - o Full annotation design and presentation tools, including automated conflict identification and resolution;
  - o Geostatistical graphics display capabilities;
  - o Map series production functions;
  - o Cartographic generalization for presentation at different scales;
- Support the management and administration of the demonstration geospatial database clearinghouse;

- Support Horizontal and Vertical Scalability to full enterprise GIS functionality required to support the full range of SL-NSDI Coordination Centre functions to be implemented in the next stage.

GEOPORTAL FUNCTIONAL SPECIFICATION

The following provides a general minimum specification for the SL-NSDI GeoPortal application.

General Requirements

The SL-NSDI GeoPortal must support the following general requirements:
- Support multi-lingual interface (Singhalese, Tamil, English);
- Provide an accessible and easy to use interface for discovery and access to geospatial data and metadata;
- Support updating of central metadata repository from distributed sources;
- Support the efficient management of geospatial metadata;
- Provide a GIS viewer application with basic map navigation, data query and map output capabilities;
- Support exchange of metadata with other GeoPortal nodes.
- Support OGC standards of exposing spatial data as WMS, WFS,…etc.

GeoPortal Management and Administration

- Allow general public users to access the system public data without user authentication;
- Support user authentication for registered users per their authorization level or role via the ICTA single sign-on system;
- Authenticated privileged users must be able to access public and secured map services;
- Allow registered data publishers to access and update the metadata records they are responsible for;
- Provide metadata harvesting tools to allow the GeoPortal administrator to automatically or on an as-needed basis retrieve new or updated metadata records from preregistered data publishers for posting;
- Provide tools to validate submitted metadata according to multiple international metadata standards as well as the specific standard customized and adopted by the SL-NSDI. Provide the ability for data publishers to be automatically notified when submitted metadata records are not in compliance with the adopted standard;
- Review and approve submitted metadata prior to publishing;
- Provide ability for GeoPortal administrator to set and control access rights including what data can be viewed, in what form (WMS, WFS, etc.), what can be downloaded directly from the GeoPortal, or referred by email to the publisher for a physical copy of the data;
- Monitor GeoPortal utilization and provide reporting on periodic and as-needed basis;

- Support provision of access to GeoPortal metadata records by other applications such as RSS readers, wikis and content management systems;
- Provide GeoRSS feed that will automatically notify subscribed users when metadata records matching their specific interests are added to the GeoPortal;
- Make GeoPortal metadata available for discovery by others;

End User Functional Requirements

- Provide authorized data publishers with the tools to develop and maintain the metadata records for data for which they are the authorized custodian;
- Provide both simple and advanced search methods;
- Support searching by key-words and themes as well as by geographic area of interest;
- Display summary results of metadata search including a thumbnail image for each selected dataset in an easy to read and understand form. Allow the user to expand any individual metadata record to access the full information.
- Metadata search results should accommodate the ability to add any referenced layer to a map view and to incrementally add additional layers from one or more metadata searches to that same view during a single session;
- Provide the ability to download a selected data layer in different format to restrict the download function to specific authorized roles and within predefined geographic area limits;
- Support discovery, query and map preview of metadata published by others;
- Allow users to access web map services from other online publishers utilizing OGC web map publishing standards;
- GeoPortal software should support access and viewing by multiple map viewer technologies, including Java™ server side Development and JavaScript™ API;

Map Viewer Navigation

General Map Viewer application should provide map navigation tool bar and shall contain following operations.
- Zoom in – This tool enables the user to magnify a specific area of interest on the map to get a more detailed view of the area.
- Zoom Out – This tool enables the user to reduce the scale of the displayed map and so the user can view more areas with fewer details.
- Full Extent – This tool will enable the user to view the default map centered on the screen and displayed in the default map scale.
- Pan – This tool will enable the user to navigate through the map to change the displayed area without changing the map scale.
- Previous – This tool enables user to move back to the previous view while navigating the map. To use this tool, it is required that at least one navigation interaction took place on the map within the existing work session.

- Next - This tool enables user to move forward to the next view while navigating the map. To use this tool, it is required that at least one "View Previous" action took place on the map within the existing work session.

Map Viewer Tools

- Identify - Application shall have Identify tool in the map navigation tool bar. The tool shall be used to perform the identify operation. User shall select the Identify tool from the navigation tool bar and click on a feature(s) on the map view. The tool shall display the attribute information of the feature(s) from the preconfigured layers in selected location;
- Mouse Hover - Application shall have mouse hover functionality, when the user moves the mouse over a map feature, a tooltip shall be displayed with the attribute information of the feature. This function will work on predefined layer(s) as per the configuration;
- Legend - Application shall show map legend with all the symbols of the map services on the current displayed map. The map services legend shall be displayed as part of Table of Contents. User can expand/collapse map services in TOC to show/hide the symbology;
- Map Overview - Application shall have an option of map overview through which the main display range will be shown to the users for the purpose of better view and control;
- Go To Point - Application shall have an option of "Go to point" through which the following operation can be performed:
  o User shall input X/Y or Latitude / Longitude in the UI and shall be able to navigate to specific point on the map.
  o X/Y or Latitude / Longitude shall be provided in WGS84 Format.
- Layers Display & Table of Content - System shall have an option to display list of layers appearing on the current map in Table of Contents (TOC) control. User shall be able to perform following operations through TOC control.
  o User will be able to turn layers on / off as required.
  o Remove any map services from the map
  o User shall save and reload the Table of Content created in the previous time.
- Scale bar - Application shall show the map scale bar, which interactively displays the current scale of the map. The scale bar control shall be placed at lower left side of the map.
- Base Map Toggle - Application shall provide an option to toggle basemaps between satellite image and vector map.
- Add Map Service - Application shall provide an option to add map service, where user can add a map service in following ways:
  o Add map service using valid URL.
  o Add map service from the list of predefined servers. For the selected server, the list of map services shall be displayed. User shall select the required service from the list add it to the map.

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- Measurement - Application shall provide an option to measure point, line and area on the map.
  - User shall measure distances and perimeter by drawing a line either in meters or in Kilometers based on the selection of units from the dropdown list.
  - User shall measure areas on the map by drawing a polygon either in square meter or in square kilometers.
  - User shall measure coordinate information of a location by clicking on the map. Point will be measured in decimal degrees or DMS. User shall select the measurement unit from the dropdown list.
  - Coordinate information shall be displayed in WGS 84 format.
- Redlining - Application shall support the following redlining operations on the map. User shall able to select any of the following available tools and perform the required operation.

  - Drawing a sketch using Freehand format
  - Drawing a Point
  - Drawing a Line
  - Drawing a Polygon
  - Writing a text on the map
  - Clearing the drawing redlines from the map
  - Modify/delete the drawn redline objects
- Metadata Search – Application shall provide the ability to search for metadata keywords and navigate to search results as appropriate;
- Advanced Search - Application shall provide "Advanced Search" tool where user shall be able to search the selected map service layer by building any custom query on the fly.
  - User shall select the required map service and layer
  - All the relevant fields shall be displayed in a dropdown
  - User shall build a custom query using the fields and conditions like Equals, not equals, Contains, Less than, greater than and providing appropriate values for the fields
  - As per the selections made by the user, system shall perform the query on the selected map service layer.
  - The corresponding search results shall be displayed in the table format with attributes information and feature count.
  - User shall select any of the search results from the results table and zoom to the selected feature.
  - User shall select the "export" option to export the results information to an excel file.
- Identify by Geometry - Application shall provide a spatial search tool to query features in a user defined geographical area.
  - User shall be able to do spatial search by drawing point with buffer zones, polygon and polyline.

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- o The corresponding search results shall be displayed in the table format with feature attributes information.
- o User shall select any of the search results from the results table to zoom to the selected feature and display attribute information.
- o User shall select the "export" option to export the results information to an excel file.
- Simple Find Search - Application shall provide a simple search option for querying and displaying the search results
  - o User shall enter the required keyword in the search box and press search button.
  - o The tool shall search for the keyword in the configured layers and display the search results in a tabular format.
  - o User shall select any of the search results from the results table to zoom to the selected feature and display attribute information.
  - o User shall select the "export" option to export the results information to an excel file.
- Email Map - Application shall have an "Email Map" option to send the currently displayed map through email.
  - o User shall activate the email map function and provide following details
  - o Recipients mail ids
  - o Mail Subject
  - o Mail Body Text
  - o Tool shall send an email to the recipients with the current map details with user provided subject and email body.

<u>TECHNICAL SPECIFICATION</u>

The following provides an indicative technical specification for the hardware and software required for this project.

<u>SL-NSDI System Architecture</u>

The purpose of this section is to lay the foundation for detailing the technical specifications for the Sl-NSDI system. It is envisioned for the system to feature three instances [Development, Staging & Production] based on a cloud setup architecture. The Staging and Production environments are replicas with High Availability built in for fault tolerance and load sharing. Cloud based architecture will provide Sl-NSDI with lower Operations cost over time yet maintaining the same level of reliability that an on-premise system can provide. Cloud based architecture can more efferently contribute to other system quality attributes. One of the key system attributes the Sl-NSDI can benefit from is to scale the system up or down based on the change of the load subjected on the system.

High-level Architecture

All environments will be hosted in a cloud with storage provided as per the system specifications stated below. Clients will access the solution through the internet or a dedicated connection to the cloud environment. The systems availability will be provided by

the cloud offerings with high-availability provided by redundant nodes. All systems are to be hosted on Windows Operating System.

Development Environment:

The development environment consists of four compute instances featuring three tiers.
a) The Presentation Tier
   The presentation tier consists of one web server to handle incoming requests and redirect them to the application tier servers as appropriate.

b) The Application Tier
   This tier consists of two servers one for Data Migration Server to handle the Extract, Transfer and Load (ETL} functionality. This functionality is required for data conversion and validation of all acquired data from different resource. And, one server for GIS request processing.

c) The Resource Tier
   This tier consists of one server for hosting a Spatial Database, two serves for identity server

Staging and Production Environments:

The Staging and Production environments consist of twelve servers each. Each environment supports high availability and features three tiers, as follows.
d) The Presentation Tier
   The presentation tier consists of two web server to handle incoming requests and redirect them to the application tier servers as appropriate.

e) The Application Tier
   This tier consists of four servers two for Data Migration Server to handle (ETL} functionality. And, two servers for GIS requests processing.

f) The Resource Tier
   This tier consists of two servers for hosting a Spatial Database, two servers for Identity Server and two servers to handle the shared data resources

   Note:

1. *Server Hardware will be provided by the client for the following hardware requirements for the staging and production environment only.*
2. *However, vendor should carry out the installation and configuration of the software.*

SYSTEMS SPECIFICATIONS:

SN#	Server role	OS (To be mentioned by vendor)	Number of cores(vCPU)	RAM[GB]	Boot LUN(OS) size[GB]	Data LUN(SW) size[GB]
Production						
1	GIS Web server		2	4	100	100
2	GIS application server		8	32	100	100
3	Database server		8	32	100	1000[shared]
4	Data Migration Server		8	16	100	200
5	File server		4	8	100	10000
6	Identity Server		2	4	100	
Staging						
1	GIS Web server		2	4	100	100
2	GIS application server		4	16	100	100
3	Database server		8	16	100	500[shared]
4	Data Migration Server		4	8	100	200
5	File server		4	8	100	500
6	Identity Server		2	4	100	
Development						
1	GIS Web server		2	4	100	100
2	GIS application server		4	8	100	500
3	Database server		4	8	100	500
4	Data Migration Server		4	8	100	200

Note: Server software license could be either open source or proprietary or both.

Annex B – Website General Specification

This section provides a general minimum specification for elements to be included in the SL-NSDI website. The Contractor will be responsible for organizing these elements within an easy to understand and navigate website. This initial website will provide basic information concerning the Sri Lanka National Spatial Data Infrastructure (SL-NSDI) program and its benefits, components, stakeholders and resources. It is expected that this website will be developed and operated for several months, following which it may undergo a significant expansion as part of a larger SL-NSDI development and capacity building program to be carried out subsequently.

General Requirements

In general, major functional requirements of the website will be:
- Content must be multi-lingual (Sinhala, Tamil and English);
- Long-term ease of content updating needs to be considered to keep the portal information current. An easy to use Content Management System (CMS) and associated training for ICTA staff will need to be provided within the project;
- Links to participating stakeholder agencies will need to be incorporated and vice versa;
- Visually, the portal needs to incorporate professional design, including the development of a suitable brand image (logo, look and feel, etc.) for the SL-NSDI program.
- The website should be accessible to search engine spiders and be coded with good on-page search engine optimization;
- This site must comply with the standards of accessibility contained in W3C WAI (World Wide Web Consortium Web Accessibility Initiative) level A Guidelines;
- All code on the site should validate to W3C (World Wide Web Consortium) specifications.

Banner Graphic

A "banner graphic" will provide a simple graphical identity that will become part of the SL-NSDI "brand image". The graphic should be simple, interesting, and representative of the Sri Lanka and SL-NSDI context. The graphic should be right-sized to minimize download time when opening the site from a browser.

Site Map
A site map should be provided showing the structure of the site and linking to every page on the site

About
This section should provide a general explanation of the SL-NSDI program and the information and resources that are available through the website. In general, this section of the website will explain:
- The purpose, process and expected results of the SL-NSDI Program;
- History and background of SL-NSDI;

- The structure of the SL-NSDI website, including a summary of each component;

Organization and Stakeholders

This area of the site will need to provide an explanation of the organization of the SL-NSDI, how it is governed and what organizations and people are involved:
- Governance structure illustrating committees and including a description of their roles and responsibilities (charters);
- Listing and logos of all the participating entities, with links to their websites;
- Overview of existing GIS capacity and related projects and programs within each participating entity;
- SL-NSDI strategic development plan (timeline and description of stages);

Standards, Products and Services

This section can provide a summary the products and services that can be accessed through the SL-NSDI website and GeoPortal. Specific topics to be addressed in the initial implementation of this section include:

- Geospatial Data Standards. Provide links to pdf's for all the formally adopted fundamental geospatial data set (FGDS) standards;

- Capacity Building Support. Outline the type of services being offered through ICTA for information management strategic planning and human and technical capacity building;

- Information Technology Products and Services. The section might provide a directory of various information related technologies, products, and professional services that are available in Sri Lanka. This might ultimately be a user maintained directory for which a subscription fee would be paid by the participants.

- Data Products and Services. Outline data products and related services that are available for a fee from government and private sector sources. Basic listing in this directory of products and services might be provided at no cost, but various levels of higher visibility advertising might be accommodated for a fee.

Work With Us
This section will provide a summary of the ways that stakeholders can interface and work with the SL-SDI program. It will also include summary information regarding information related initiatives between Sri Lanka and other regional and international organizations.

- Directory of GIS Stakeholders in Sri Lanka. The list of organizations involved in the Baseline Survey could be used to create a directory of people in Sri Lanka interested in GIS, and their contact information. Inclusion in this directory should be confirmed with each individual before this information is published on the site. There should also be the capability for persons to register themselves for inclusion in the directory, and to receive update information by email. Linkage to the registration page should be both through this page, as well as through the top level home page as described elsewhere.

- Other Partners. Other national, regional and international partners to be recognized as those partnerships are initiated.

- Becoming a Member. Instructions on how to become a member of the SL-NSDI community. Ideally this would support self-registration and management of this information in a Customer Relations Management (CRM) system.

A-Z Subject Index
This section would essentially be an alphabetical directory of all topics that may appear throughout the SL-NSDI website with associated linkages to those subjects.

Media Center
Provides access to all past and current press releases and other resources that can be accessed and downloaded by the media to inform the public about the SL-NSDI initiative or to support media research about related topics and events.

Frequently Asked Questions
This section would provide a list of frequently asked questions (FAQ's) and generic answers regarding the SL-NSDI or related initiatives. Ideally, this area of the website would both provide existing FAQs, as well as allow visitors to the site to enter in new questions. Those new questions could be monitored and periodically compiled and synthesized towards the development of new FAQs and associated answers.

This section should include a comprehensive glossary of technical information management terms in all required languages.

Search
This section will provide a general search function for the entire site. At a minimum, the search engines should provide the capability to do full content search across the web site, including the indexing and searching of documents and data bases on the site.

Links to Related Programs
This section provides an inventory and linkages to other current and planned major programs that relate to the SL-NSDI.

Time
Has a link to an atomic clock and a map that allows the user to establish what time it is at the central office

Technology News and Events
This section would include a variety of general and specific interest information regarding technological developments and events that are of interest to SL-NSDI stakeholders. This could include, but not be limited to, the following:

- News. What are the latest developments concerning SL-NSDI and related initiatives. This might also include relevant news clippings from print media, and summaries from television, radio, conferences and other events;

- Events. This will include a general calendar with linkages to brief descriptions of upcoming events that are relevant to the SL-NSDI initiative such as international conferences, seminars and workshops, lectures, vendor demonstrations, and other events;

- Conferences. This section of the website will include a conference of listing of all the major local, regional, and international conferences that are of potential interest to the SL-NSDI stakeholders in Sri Lanka over the next year. This will include a brief overview of each conference venue, general scheduling information, and where appropriate, linkages to the conference web site for additional detailed conference and registration information

- Visitor Information and Directions. This section of the website should include information regarding directions to organizations and participating stakeholder agencies. This should include both textual and graphic (maps) types of information to illustrate the directions.

How to Contact
This section of the website should include a directory with contact numbers and email addresses for organizations, participating stakeholder agencies, key individuals and the webmaster.

Date last updated
A message should be included on the website that indicated the date created and when the website was last updated.

Navigation on secondary pages
Navigation bar is added to the header graphic for all pages after the homepage.

Customer Survey
Linkage to survey form to solicit input and feedback from the GeoPortal user community

Geospatial Portal
Metadata catalog search;
Link to map viewer environment.
(See Annex 1 for full GeoPortal functional specification).

Annex C – Lanka Government Cloud (LGC)

When the current technology enhancements and trends are considered, a fully-fledged cloud environment has become an essential need to cater to the emerging needs of the government. Moreover, aligned with the national policy of 'Digitization of Economy', ICTA intends to implement several initiatives across the government to increase the efficiency of the government processes and to provide government services effectively and efficiently. In this context, development and improvement of digital infrastructure has been identified as a key area. Lanka Government Cloud is implemented accordingly to provide efficient, cost effective, reliable and secure infrastructure services to the government.

LGC is the central and common government cloud, and it is expected that all types of government applications will be hosted in LGC.

LGC adopts a hybrid cloud model allowing access to vast public cloud resources. It has the capability of serving for any government requirement adopting any cloud delivery model, and container support ensures the effective utilization of resources with combination of scalability, availability, efficiency, flexibility, and usability.

A Big-Data cluster is also available along with LGC to serve as the National Platform for Data Management.

LGC 2.0

Annex D – SL-NSDI Coordination Centre Overview

SL-NSDI coordination center overview

The SL-NSDI development program is to result in the establishment and operationalization of the initial SL-NSDI Coordination Centre (CC) that will promote, facilitate and support the Sri Lanka NSDI program. The CC will provide the common data, software and computing infrastructure needed to support the needs of the community, as well as the staffing for stakeholder engagement and technical support needed to operate the system and facilitate the program governance. The CC will operate under the direction of an Executive Committee comprising senior representatives from selected key participating organizations.

The following provides a high level summary of the essential functions expected to be carried out by the CC. This summary is indicative only, as the final definition of the roles and responsibilities of the CC are currently being developed through a detailed requirements analysis process being conducted separately. This document is intended to provide EOI submitters with a clear understanding of the likely operational context that the Foundation System and Facility will be intended to support.

Community Development and Coordination

The CC will be responsible for the strengthening and expansion of the SL-NSDI stakeholder community through active engagement of additional stakeholder entities; the continued development of data coordination and sharing agreements with all stakeholder entities; and, strengthening of the community governance framework for continued effective coordination and operational efficiency. Specific functions within this activity area include:

Stakeholder Liaison. Support customer relationship management with the stakeholders. This includes initiating and overseeing the new member engagement process, understanding the structure, policies, and operations of each new stakeholder, the data that they are custodian for or that they require from others, and how the SL-NSDI can benefit each new member. It also involves maintaining regular communications with each stakeholder over time to ensure that the program continues to meet the needs of each member as well as the community as a whole.

Community Development & Business Engagement. Ongoing coordination with the community as a whole in regards to ongoing business and issues that are of common interest. The main activities of the community development include, but not limited to:

- Advising entities on the preparation of their internal enterprise GIS Roadmaps;
- Development and execution of Service Level Agreements (SLA's), data licensing agreements, Master Licensing Agreements, Memoranda of Understanding (MOU's) and other arrangements among community members;
- Support daily communications and coordination with community members;
- Support the identification and mobilization of Special Interest Groups (SIG's) and Working Groups (WG's);
- Establishment and management of relationships with local, regional and international professional and commercial associations.

Development and Management of Standards. The identification of Fundamental Geospatial Data Sets (FGDS) that are needed across the community and the facilitation of Working Group processes to develop content standards for FGDS that are responsive to the members'

needs. Once a standard is developed and implemented there is also a need to periodically modify them in response to new requirements or opportunities, and to carefully coordinate any such changes across the community to avoid disruption of linked systems, databases and applications.

Fundamental Data Coordination and Projects alignment

This activity area involves coordination with FGDS custodians to ensure compliance with data provision SLA's. In selected cases this can also involve the development of datasets that are needed by the community, but for which there is no single identifiable custodian (e.g. "community facilities" that may include a wide variety of facility types associated with many different sectors and responsible entities). This activity also includes monitoring and proactive action to facilitate the filling in of data gaps over time, and facilitating the alignment of projects to optimize the use of existing data and/or to create data that will be useful to others beyond its initial project-based purpose.

Technical Services and Operations

The CC will need to provide SL-NSDI community with a variety of services. The primary functions within this activity area include:

GeoPortal Services Management. The objective of this activity is to ensure that the deployed GeoPortal data and application services and supporting back office environment are maintained and enhanced as necessary to support effective use across the community. Requests for enhancements as well as new requirements are logged using a service desk support system, and are evaluated for feasibility and introduced into mainstream production based on identified priorities and available resources.

Common Application Service Development and Management. This function involves ongoing engagement with the SL-NSDI community to identify requirements for common application software functionality that can be developed and maintained centrally, thus providing common modules that can be consumed within stakeholder enterprise systems and/or e-Government applications.

Technical Operations. The SL-NSDI is envisioned as a network of interoperable nodes, centered on the central GeoPortal as a centrally operated and managed node. Technical Operations activities include the development, enhancement and maintenance of the central node; the development of the tools, mechanisms and processes to maintain the operating infrastructure; and ensuring system operation and the availability of up-to-date quality data on a 24/7 basis.

Policy and Governance

The SL-NSDI will require an enabling environment of policies and governance structures that can help to streamline and strengthen the initiative. The government is undertaking a separate effort to develop a policy framework to guide the development and operation of the SL-NSDI. The CC will include a function to oversee the development and management of policies and community governance structures and functions.

Outreach and Communications

The SL-NSDI community must operate, communicate and collaborate at many levels, and this will increase especially as the community matures and grows in size. As such, a well-structured framework for outreach and communications is essential to ensure that information flows are appropriately targeted, timed, and disseminated.

Annex E – Project Staff Qualifications

The following provides a list of roles and levels of experience that are expected for carrying out this project. This list is intended to be indicative only and the bidder is responsible to demonstrate how these required skillsets will be met or exceeded by the proposed team.

Project Manager. The Project Manager provides operational direction to the project, supports mobilization of the needed resources, carries out the project management routine functions with the Client, notifies the project status and any risks to the Client, and supports Client representatives to spread the awareness and executive commitment to the Project activities. The Project Manager oversees and coordinates the daily operational activities of the project. He ensures that all the project communication, performance management and risk management tools are maintained properly. He/She monitors the work-in-progress on the various phases in the project and ensures that the deliverables and/or milestones are to the satisfaction of the Client. The Project Manager must have at least 10 years experience in the management of projects of a similar scope and must have previous experience with the planning, design, and implementation of at least one National Spatial Data Infrastructure program.

Senior Technical Consultant(s). The Senior Technical Manager will serve as the technical expert on all aspects of information and geospatial technology management, including remote sensing, spatial data management and analysis, programming and cartographic production. This role will report to the Project Manager, while being responsible for the technical management of projects, technical resources allocations and technical staff assignments to project activities. He / she will additionally be required to actively participate in the development and review of GeoPortal and data architecture development, integration within the Lanka Government Cloud environment, outreach needs assessments, data inventory, and database services and web design for the project. The Senior Technical Consultant should have a Bachelors's degree in Geography or an equivalent relevant field and at least 5 years experience in managing the design and implementation of GIS systems. Previous experience in the implementation of NSDI programmes also preferred.

GeoPortal Specialist. The Geospatial Portal Specialist role is responsible for the design, development and maintenance of the SL-NSDI Phase 1 Geospatial Portal, inclusive of both the metadata server and map viewer components. The Geospatial Portal specialist will ensure the Portal development and operation are compatible with international good practice and well-integrated to the Lanka Government cloud environment at ICTA. This role should have previous experience in geo spatial data modeling and the implementation of the GeoPortal software being proposed, and should have 3-5 years of experience in the planning, design and development of customized programming and interfaces for web-based applications and mapping services.

GIS Data Analyst(s). This role includes the collection, processing and structuring of all GIS and related data that will be used to populate the SL-NSDI Phase 1 data repository and subsequent creation of Data Clearinghouse and metadata catalogue. This role will work under the general direction of the Technical Manager. Analysts should have specialization in particular areas such as system and database design, spatial analytical procedures, cartographic design and programming. In addition, the Analysts should have the capability to produce high-quality applications and outputs necessary to demonstrate the benefits and potential of the SL-NSDI program. This role should have strong background using Advanced

GIS software and related products such as advanced spatial and 3D analytical tools, thematic mapping, trend analysis, etc in a project and production environment. This role will need to work with the Project Manager, Technical Manager and Outreach Specialist to support technical GIS analyst activities, data inventory and assessment, and the design and production of derivative data products needed to highlight the stories to be communicated through the Phase 1 GeoPortal.

Website Developer. This role will be responsible for designing, coding and modifying the SL-NSDI website, from layout to function and according to a client's specifications. This role should have demonstrated skills and experience in creating visually appealing dynamic websites that feature user-friendly design and clear navigation, communicative with the backend database management system. The person should have good communications skills to be able to work with the Outreach Specialist and stakeholders to understand what information needs to be communicated and how to structure this information into a compelling and easy to use website environment. This person should also have a strong understanding of UI, cross-browser compatibility, general web functions, services and standards.

GIS Cartographer. This role is responsible for the design and implementation of the digital mapping that will be displayed in the GeoPortal. The Cartographer should have at least a bachelor's degree in geography or geo-informatics or equivalent relevant field and 2-3 years minimum experience in GIS-based cartographic design and production. Specific experience in creating cartographic products for display in an interactive map viewing environment critical. The individuals proposed for this role should be able to provide examples of past work that exemplify the use of well-designed maps that effectively communicate the thematic subject material in a manner that is easily understood by a lay audience.

Outreach and Communications Specialist(s). This role will be responsible for working with the client and selected stakeholders to identify and articulate the development stories that can most effectively demonstrate the utility of the SL-NSDI for executives, agencies, and the general public. This role should have an educational background in outreach and communications or related discipline, at least 5 years professional experience and be able to demonstrate skills and experience in the development and execution of multi-sector stakeholder engagement and communications plans. Previous experience in the promotion and communication of NSDI programmes preferable.

Annex F – Non-functional Requirements

Performance Requirements

The system should be based on service oriented architecture (SOA) with multiple access layers connecting providers and consumers incorporating web applications and service communication tiers.

- The GeoPortal shall be available 24 hours a day, 7 days a week (24/7).

- The GeoPortal shall be available at government offices via the Lanka Government Network, and available for public and private institutions, and citizens, via the Internet.

- The system shall be able to manage at least 50 concurrent users and it should be scalable up to 1000 concurrent users.

- System response times for data search will be measured as the delay between a key stroke action by the user and the time taken to display the record required by the user, on a client desktop workstation similar to Intel Core Duo processor.
  90% within 2 seconds
  100% within 3 seconds

- System response times for use of services provided by other systems shall not be included in the response time of the GeoPortal, but the GeoPortal shall provide a log for response times when using services.

- User should be able to get the support online - There should be a separate supporting team for a period of 5 years for providing support of the smooth functioning of the system from the date of commissioning. Service provider must agree with any specified period given by the client for the extension providing support, at the willingness of the client as decided.

Reliability Requirements

- The GeoPortal shall have an uptime of more than 99% of the announced 24/7 availability, measured over any 30 days period.

- Penalty shall be agreed in the contract for cases when the Geo-portal down-period exceeds the above limits.

- In case of s/w failure of software, recovery response should be within 6 hours and Maximum recovery period should be of 48 hours.

Usability

- The GeoPortal solution shall be able to be used by operators with minimal to average experience with Internet and web browsing.

- A randomly chosen user of the GeoPortal shall be able to:
  - Search for an address and have it visualized on a map within 10 seconds
  - Enter a metadata record in a maximum of 4 minutes
  - Enter a new user within 5 minutes (undertaken by the Database Administrator)

- The system must provide the option on every page of the complete GeoPortal to view the headings, menus, labels, tooltips, and any software control values in all of the following languages: Sinhala, Tamil and English

Error Handling

- All written software shall be subject to a comprehensive error handling regime, which shall be described in the offer by the bidder.

- Error and Warning messages shall be informative and identify the error as completely as possible (e.g. identifying the module, the procedure or function, any variables passed to the procedure or function, the identifier of the record being processed at the time of the error, the last SQL statement, if relevant. Server load, server application hanging etc.)

- All error and warning messages shall be written to the server's Windows Event Log for the GeoPortal.

- Critical errors shall be emailed automatically to all relevant software support personnel.

- It shall be possible to configure the language (Sinhala, Tamil and English) for Error Messages.

Documentation

- Software Description Guide- The GeoPortal Software Description Guide shall be provided in the Sinhala, Tamil and English languages, and shall describe the following:
  - Software development environment (including tools used),
  - Software compilation details
  - Implemented software architectural features
  - Software coding standards
  - And any other software details that will be of use for software support or for further development of the GeoPortal.

- Deployment Guide-   The GeoPortal Deployment Guide shall be supplied in the Sinhala, Tamil and English languages, and shall describe the technical aspects of
  - installing,
  - calibrating, and
  - fine-tuning

- The GeoPortal software, application performance and database. This guide shall be oriented towards the technical specialist (e.g. system integrator, DBMS administrator).

- User Manual- The GeoPortal User Manual shall be supplied in the Sinhala, Tamil and English languages, and shall describe and illustrate all system functions.

- User Manual Updates- The text files containing the original text of the User Manuals shall be organized in such a way that parallel updates in all the languages will be managed easily and consistently. The update method shall be described by the bidder in the offer.

- Help files- Text files used for the Online Help functions and tutorials shall be available for management and parallel update in all the languages. The update method shall be described by the bidder in the offer.

Licensing

- All modules of the GeoPortal shall be able to be scaled-up to the double the amount of users as currently specified, without the need to pay for additional software license fees.

- Bidder should supply the following software licenses:
  - Spatial Database Server
  - Web Application Server
  - Web Map Server
  - Cache(Image) Server
  - Proxy Server
  - Server OS with security
  - Data format exchange server
  - GIS Desktop (Advanced)
  - Data Format exchange Workbench
  - The supplier shall, at the stage of detailed system design, identify all software packages (whether Commercial or Open Source) that are required as part of the comprehensive solution for the GeoPortal, along with any costs associated with the ongoing use of these software packages.

The contracting authority shall reserve the right to obtain software licenses under a separate contract.

System Administration

- The system shall keep a log of all changes to the databases, including:
  - Database transactions made by the GeoPortal
  - Database changes made by Database Administrator

- The system shall keep the log of changes for at least 6 months, and then archive it.

- No user can change the log of changes, not even the Database Administrator.

System Deliverance

- The GeoPortal will be developed in two phases
    - Phase 1
    - Phase 2

- The contractor shall be delivered only Phase 1. But, it should be scalable for the phase 2 implementation as defined in the requirement assessment report which will be provided during the inception.

- Phase 1 GeoPortal shall be tested and accepted (OAT and UAT) prior to installation on the production environment

Security Management

- The system shall provide System Administration tools for the definition of user roles of
    - Read-only
    - Edit
    and
    - Editor of the GeoPortal
    - Database Administrator

- Changes to the databases shall only be made by use of the GeoPortal functionality, when system update or by SQL-operations performed by Database Administrator

- The GeoPortal shall be able to prevent the receipt of trivial messages from users as well as other kinds of spam

- The GeoPortal shall take into account the existing comprehensive firewall protection for connections.

Installation, Testing and Support and Maintenance requirements

- Installation-   The software shall be installed by the supplier at the premises of the ICTA Lanka Government Cloud
- Testing -   There shall be two stages of the software testing and acceptance:

    - Operational Acceptance Test (OAT)
    - User Test (UT)
    - End User Acceptance Test (UAT)

- Test plan-   The supplier shall deliver a test plan of all tests to be included in the OAT. The test plan shall contain
- A list of test scenarios (test cases)
- Detail test cases associated to the scenarios

- Test scenario- The supplier shall prepare a list of test scenarios which shall contain a short description of real use cases or workflows to be tested. The list of scenarios shall be approved by review committee

- Test cases- The supplier shall prepare test case specifications and provide them to the review committee for approval. The review committee shall have the right to request modifications to the test case documentation. The review committee shall have the right to use amended and expanded test cases for the User Test and End User Acceptance Test (UAT).

- Test cases- The supplier shall prepare test case descriptions for
  - Functional tests
  - Test of practical and actual workflows / use cases

- Test case- The test cases shall cover all test scenarios. The description shall be formatted as a step-by-step procedure (check-list), where each step is described by following information
  - User function
  - Detailed expected results from the function

Note: Test cases can also be used as training material

- Web Service Tests- If relevant, the supplier shall use the following SOAP-UI software for the testing of web services:
  http://www.soapui.org/

- Test and training environment- The supplier shall develop testing, training and development environments, separated from the production system.

- OAT- The supplier shall perform OAT on all test cases. The OAT shall be documented and accepted by the review committee prior to the installation.

- External test possibilities- During the development period, the supplier shall establish a test environment which is accessible from ICTA and others as decided be ICTA

- User Test- After installation, a user test shall be performed at ICTA and at least one office or Internet user outside KCA. User test and acceptance shall be done after the training is completed for the relevant ICTA or stakeholder staff.

- Error corrections- Based on the user testing the supplier shall correct the software and install a new version of the software. The user tests shall continue until all errors are removed.

- UAT- When all errors are removed, the supplier shall participate in the UAT. The UAT shall take place no more than one week after UT has been completed. The UAT shall be executed at the premises of ICTA and in at least one external office.

- Support and Maintenance-   The supplier shall provide a comprehensive support and maintenance for one year. The support and maintenance shall cover all software and customized applications that are delivered as part of the software solution and database for the GeoPortal.

- The support and maintenance period shall begin once End User Acceptance Test as well as Training is complete and approved by review committee.

- Error handling-   During the installation, acceptance and support and maintenance period the supplier shall provide corrective services.

- The supplier shall in the offer present a proposal for error reporting and corrective services, including response times.

- Support-   The support during the support & maintenance shall be implemented via a three-level support regime
  - 1st level support, by a super-user who can give rapid help to users at ICTA who experience a problem with the system. This requires a person who has very good knowledge of the system, who can understand the problem and give advice on what to do. Many problems can be solved at this level, without making any changes to the SW.
  - 2nd level support by an analyst who can analyze problems that cannot be solved by the experienced user, or analyze the need for improved functionality in depth. and prepare related specifications for subsequent changes to the source code
  - 3rd level support by a developer who can make changes to the source code related to removing errors as well as for new functionality

- Locally-based support-The support during the support and maintenance shall be implemented via locally-based first-level and second-level support, while third level support may be provided from outside Sri Lanka.

- Maintenance- The supplier is obliged - if requested by ICTA– to enter into a maintenance contract after the support and maintenance period has expired

- Project source code availability-   Maintain project source code for the customized software components in the ICTA Source Code Management system (SCM).

- Right to access, modify, further develop and enhance the system at no cost ICTA or its designated entity (end user) should have the right to access, modify, further develop and enhance the system at no cost to ICTA or its designated entity (end user) for the customized software components

- Agree to a non-disclosure agreement Contractor should signed a Non-disclosure agreement with respect to data provided by stakeholder institutions.

- Ownership rights-   The Contractor shall provide to the client the ownership rights in respect to the client specific components of the system through a source code management repository designated by the client, provided there exist no license

restrictions affecting transfer of such ownership. The ownership rights in respect of client specific components may be shared between the client and the consultant at the discretion of client.
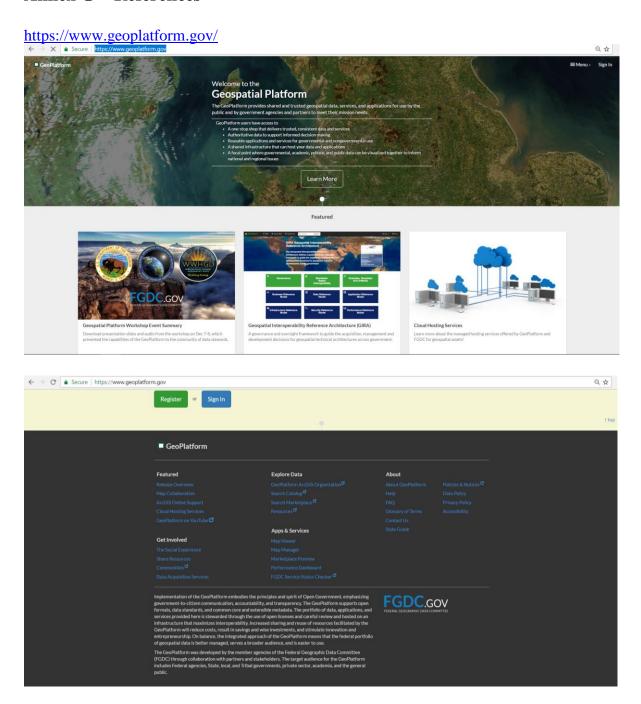
Client specific components shall mean:

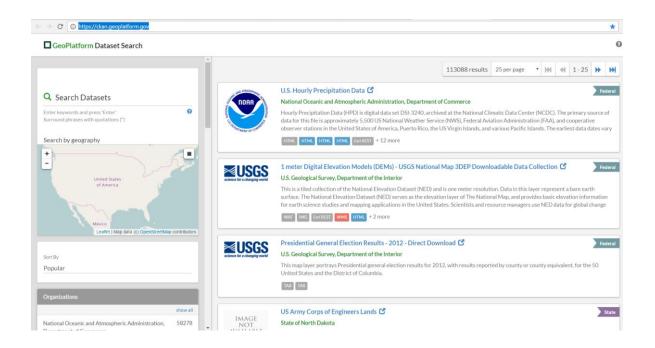1. Licensed software components which are modified to meet the system requirements

AND

Bespoke applications to meet the system requirement.

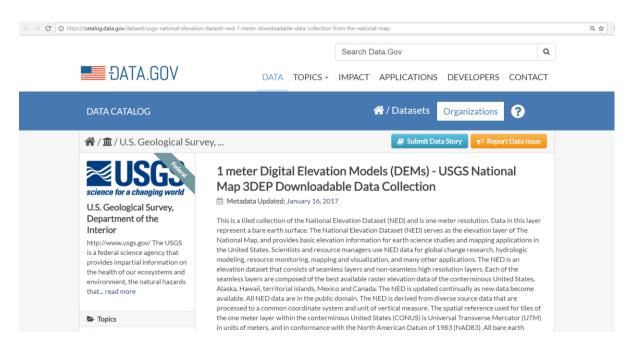- Data ownership authority- After commissioning the contract, stakeholder organizations should have the data ownership authority
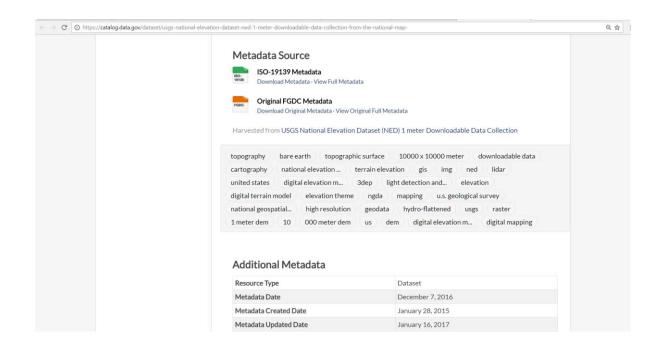
Annex G – References

https://www.geoplatform.gov/

(Metadata Catalogue) https://ckan.geoplatform.gov/

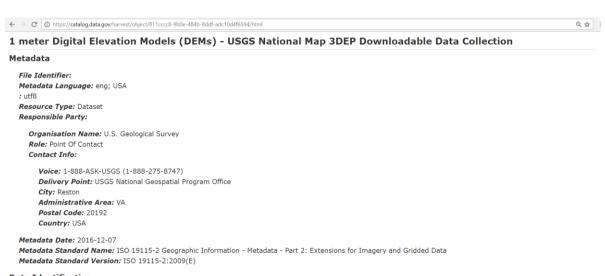(Metadata Site) https://catalog.data.gov/dataset/usgs-national-elevation-dataset-ned-1-meter-downloadable-data-collection-from-the-national-map-

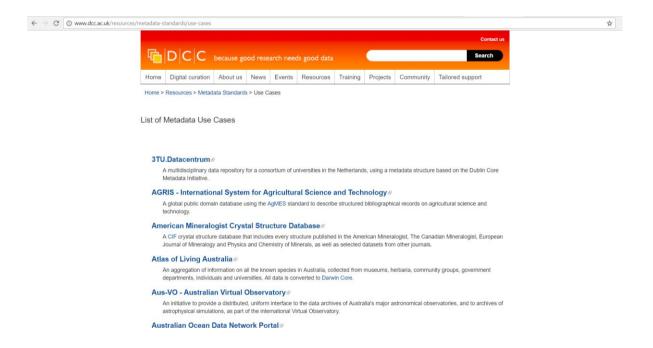(Metadata Contents) https://catalog.data.gov/harvest/object/811cccc8-9b0e-484b-8ddf-adc10d4f6594/html

(Metadata Use cases) http://www.dcc.ac.uk/resources/metadata-standards/use-cases

Appendix B – Schedule of Payments

No	Deliverables	Timeline	Payment schedule (Percentage of total cost)
1	Advanced payment for Installation, configuration and customization of the website and geo portal and outreach Data collection, digitizing, geo-referencing and compilation	Signing of the contract	15% of the total price of Table 1 in service providers bid upon submission of an advanced payment bank guarantee for the same amount
2	Successful completion of Installation, configuration and customization of the website and geo portal and outreach Data collection, digitizing, geo-referencing and compilation	Contract date + 2 months	50% of the total price of Table 1 in service providers bid
3	Successful installation of Software	Contract date + 2 months	100% of the total price in Table 3 as mentioned in service providers bid
4	Successful completion of UAT and OAT	Contract date + 6 months	35% of the total price of Table 1 in service providers bid
5	Support and Maintenance		Total price of annual support and maintenance charge will be paid at the beginning of each year as per the Table 2 in service providers bid

Above payments shall be released on acceptance of deliverables by the document review committee and ICTA officials.

Appendix C – Key Personnel

For reference, the government expects the following skillsets to be present in the team, at a minimum. Indicative minimum experience expected for each role is listed in Annex E.

- Project Manager.
- Senior Technical Consultant(s)
- GeoPortal Specialist.
- GIS Data Analyst(s).
- GIS Data Conversion Specialist(s).
- Website Developer
- GIS Cartographer.
- Outreach and Communications Specialist(s).

Project Delivery Team

Serial No	Team/ Team member Name	Qualification	Experience

Format of Curriculum Vitae of Key personnel

Name of the Employee	
Proposed Position	
Nationality	
Age	
Education	
Other training	
Offices Held, Academic Distinctions, Awards & Scholarships	
Language & Degree of Proficiency	
Membership in Professional Societies	
Countries of Work Experience	
Employment Record	
Period	Company & Designation
	(Could be expanded to suit requirement)
Detailed Employment Record	
Time frame	Description of Projects
	(Should be expanded to suit requirement)

Appendix D – Breakdown of Contract Price in Foreign Currency

Not Applicable

Not Applicable

Appendix E - Breakdown of Contract Price in Local (Sri Lankan Rupees)

Not Applicable

Appendix F – Services and Facilities provided by the employer

Not Applicable

Appendix G – Performance Incentive Compensation

Not applicable

Appendix H – Service Level Agreement for Support and Maintenance