

Summary of Q&A for Questions received until February 8, 2017
Satellite Systems, Ground Segments and GIS Applications/Solutions under THEOS-2 Project

1. Procurement Procedure (already posted)

Q1-1 Would it be possible to use a bank transfer to obtain the bid documents? We would need to know IBAN and bank details in that case.

A1-1 No. Only cash or cashier's cheque payable to GISTDA in THB is allowed.

Q1-2 Can the documents be delivered electronically by email, or would we need to pick them up in person?

A1-2 We will provide the hardcopy of the Bid Documents package to the representative of firms, Joint Venture / Consortium / Other Associations upon purchase. Electronic copy will also be sent to the e-mail address provided by the representative.

Q1-3 Could you kindly indicate the liaison person and the procedure of purchase? In addition, will the electronic copy of the bid documents be provided?

Q1-4 What are the documents, procedures, information required to get a full set of THEOS-2 bidding documents?

- Do you need people to register?
- Do you only need name of the company?
- Do you need passport copy?
- Do you need power of attorney?
- Do you issue official receipt?

Understood there is a 200,000 THB fees. Can this be paid in foreign currency or only in THB? Exclusively cash or cheque?

A1-3/4 For the purchase of Bid Documents, please contact

Procurement, Premises and Vehicles Division (7th Floor)

Geo-informatics and Space Technology Development Agency (Public Organization)

120 The Government Complex Commemorating His Majesty The King's 80th Birthday Anniversary, 5th December, B.E. 2550 (2007) Ratthaprasasanabhakti Building 6th and 7th Floor, Chaeng Wattana Road, Lak Si Bangkok 10210, Thailand

Procedure of purchase

- Contact the "Procurement, Premises and Vehicles Division" at the above address during the purchasing period (from 20170123 to 20170127, 0830-1630 hours).
- Representative of firms, Joint Venture / Consortium / Other Associations presents required documentation and provide payment of a nonrefundable fee of 200,000 THB (cash or cashier's cheque payable to GISTDA).
- GISTDA will provide the Bid Documents package and an official receipt.

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- One set of Bid Documents may be purchased for each of firms, Joint Venture / Consortium / Other Associations.

Required documentation is as following:

- A letter of Intent on bidding participation
- A copy of firms, Joint Venture / Consortium / Other Associations's Registration Certification (certified true and correct by authorized person)
- A certificate of Power of Attorney / Proxy
- A copy of Passport (or Thai National ID Card) of the representative of firms, Joint Venture / Consortium / Other Associations with signature to certify the true copy

Q1-5 In order to participate the Bid 'Satellite System, Ground Segments and GIS' Is it necessary to sign Memorandum of Understanding to be able to participate the Bid?

A1-5 No. Please refer to Clause 29.4 in the Instructions to Bidders "...execution of the MOU is condition precedent of the Procurement Contract execution. The MOU shall be executed on or before the date of execution of the Procurement Contract..."

Q1-6 We request clarification of our interpretation of section "2. Eligibility/Qualification of the bidder", "2.3a" on "conflict of interest" which states that because [A] and [B] have common shareholders, each of [A] and [B] might not be able to offer independent bids.

A1-6 The concept under the said section conforms with the principle that the bidder shall not be the co-interest bidder under GISTDA procurement regulation B.E. 2553 (2010) and its amendments. In addition, in interpreting the meaning of the term "co-interested bidder", GISTDA has adopted the definition of "co-interest bidder" under the Regulation of the Office of the Prime Minister on Procurement B.E. 2535 (1992) and its amendments to be applied mutatis mutandis which stated as follows:

"Co-Interest Bidder" means a person or a juristic person who quotes the price in purchasing materials of a government agency or quotes the price to be contracted for works or to be engaged as a consultant or to be contracted for design and work supervision of a government agency is an interested person either directly or indirectly in the enterprise of other persons or juristic persons who quote the price or submit work proposal at the same time.

Direct or indirect interest of a person or a juristic person above means a person or a juristic person who has the relations in the following characteristics:

(1) Relation in management: manager, managing partner, managing director, executive or person authorized to administer the enterprise of a person or juristic person, has authority or is authorized to administer the enterprise of another one or more persons or juristic persons who quote the price or submit work proposal to the government agency at the same time.

(2) Relation in capital: partner in an ordinary partnership or partner with unlimited liability in a limited partnership or large share holder in a limited company or a limited public company is partner in another one or more ordinary partnerships or limited partnerships or is major share holder in one or more limited companies or limited public companies who quotes the price or submit the work proposal to a government agency at the same time.

"Major share holder" means a shareholder who holds more than twenty five percent of stake in that enterprise or in the rate fixed by CCP for some types or sizes of enterprise.

(3) Cross relation between (1) and (2): manager, managing partner, managing director, executive or person authorized to manage the enterprise of a person or a juristic person is partner in another or more ordinary partnerships or limited partnerships or large share holder in another or more limited companies or limited public companies who quote the price or submit the work proposal to a government agency at the same time or vice versa.

Being appointment, being partner or holding share of spouse or nonmatured child of the person in (1) (2) or (3) is regarded as being appointment, partner or holding share of that person.

In case that a person uses another person's name as manager, managing partner, managing director, executive, partner or share holder whereas he himself is authorized to administer or is real partner or share holder of a partnership or a limited company or a limited public company depending on the case and such partnership or limited company or related limited public company who quotes the price or submits the work proposal to a government agency in the same time. This shall be regarded that the bidder or the server has relation according to (1) (2) or (3) depending on the case."

2. Instructions to Bidders and Draft Contract

Q2-1 Please provide appropriate contract start date for planning purposes.

A2-1 The tentative contract start date is June 1, 2017.

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- Q2-2 Paragraph 4(d) (in Annex 1B) states that the Bid Bond will expire 90 days after the latest date for acceptance (of the Bid), whereas the Instructions to Bidders 13.2(7) states 28 days beyond the validity date of the bid. Can Annex 1B Paragraph 4(d) be updated to state expiration 298 days after bid submission (270 +28)?
- A2-2 Annex 1B (Form of Bid Security) has been replaced by "Form of Letter of Guarantee (Bid Security)". The expiration date of bid bond is as specified in the Instructions to Bidders.
- Q2-3 When does GISTDA expect final budget approval for THEOS-2?
- A2-3 Tentatively in Feb 2017.
- Q2-4 "The firms, Joint Venture / Consortium / Other Associations shall provide at least one Certificate of Achievement from Employer(s) for Both (1) Satellite System(s) and (2) Application(s). For foreign firms, Joint Venture / Consortium / Other Associations, the corporate document Described in paragraph a) through 1) below shall be provided."

For safety sake, we would like you to confirm that the English definition of "firms" in plural form means a group of more than one organization structuring prime/sub contractor scheme for example to participate in THEOS-2 bidding as a single identity, as used in international bidding process. In other words, we would like you to confirm that the experience record of each team members in such structure (Prime-Sub) can be counted as the experience record of () team, regardless in the structure like Joint Venture or Consortium. According to the explanation given by GISTDA's management during the Clarification Meeting to TNT on June 2, 2016 showed no restriction on the choice of business formation by the participants provided that the prime contractor shall carry full responsibility to manage the various experienced organizations in the business formation.

- A2-4
1. Firms means a single juristic person.
 2. Other Associations means persons united to form group of person (having the status of natural person/ non-juristic person).
 3. A Joint Venture which is not registered as a new juristic person, or a Consortium: each member forming the Joint Venture or the Consortium must individually buy the Bid Documents.
 4. A Joint Venture registered as a new juristic person is eligible to buy the Bid Documents for and on behalf of the new registered Joint Venture.

5. Relevant experiences:
 - 5.1 A new registered Joint Venture is eligible to submit the relevant experiences of one of the members of the Joint Venture for and on behalf of the Joint Venture.
 - 5.2 A Joint Venture that is not registered as a new juristic person, or a Consortium, must submit the relevant experiences of all the members of the Joint Venture or the Consortium. Unless, it is agreed in writing that one member of the Joint Venture or the Consortium is authorized as a main person to bid, then the relevant experiences of that authorized member can be used.
 6. Due to the fact that the issued Instructions to Bidders does not determine the rules of submission of Bids by a non-registered Joint Venture or a Consortium, therefore we have to apply the Regulation of the Office of the Prime Minister on Procurement B.E 2535 (and its amendment). The Regulation prescribes that in case where the Bidder is not listed in the name list of the persons who received the Bid Documents or is not listed in GISTDA's documents concerning the receipt of Bid Documents, then GISTDA will not consider the Bid from the non-listed Bidder without any exception whatsoever.
- Q2-5 What is the GISTDA's official interpretation regarding the clause related to bidder's experience? (Whether subcontractor's experience shall be regarded as the bidder's experience or not)?
- A2-5 Subcontractor's experience shall not be regarded as the bidder's experience.
- Q2-6 After the trading company bought the Bid Document as a bidder and the bidder (the trading company) with the subcontractor (the manufacturer), Will this bidder whose subcontractor has enough experience in compliance with tender condition be disqualified?
- A2-6 Please see answer A2-4.
- Q2-7 If the trading company bought the tender document and want to form a consortium, every rest member(s) of consortium shall buy the tender document, too? Even though one of consortium members already bought the tender document?
- A2-7 Please see answer A2-4.
- Q2-8 Is the desire for the bidders to develop their own draft contract appendices (e.g., SOW) or will GISTDA be providing them to the bidders?

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- A2-8 Yes, it is desirable that contract appendices have to be developed by bidders. The document comprising the Bid is specified under Clause 9 of the Instructions to Bidders.
- Q2-9 The 2-page “Cost Estimate” (document provided in Thai) indicates the total budget as being THB 7000,000,000. Clause 25.8 of the “Instructions to Bidders” states “Calculated bid prices, as evaluated and corrected for computational errors, discounts and other modifications, which exceed the approved budget for the contract shall not be considered”. In addition, page 2 of “Invitation to Bid” states “please be emphasized that the project is under closed consideration by the government of Thailand for the budget. GISTDA will sign contract only by the approval of the budget” Kindly clarify: if our bid exceeds THB 7000,000,000, will the bid be disqualified?
- A2-9 If the bid exceeds 7,000 MTHB the bid will be disqualified, pursuant to Clause 20.14 and 25.8 of the Instructions to Bidders.
- Q2-10 Page 136 of 167 in “Instruction to Bidders” document states “Bidder shall provide a management plan including test equipment needed for Assembly Integration & Test”. Also, Page 12 of “Draft Contract” document under section 6.1.e (i) states “Scope of Work Item V (i) Satellite assembly, integration and test (AIT) facility;” indicating the AIT facility is to be provided by vendor. As this is a significant cost line item, please clarify if the AIT facility and test equipment will be provided by GISTDA at SKP and Vendor is expected to provide a “management plan”; OR whether the AIT facility and test equipment is to be provided by vendor at SKP.
- A2-10 The bidder shall provide a plan for the implementation of an AIT facility, and a list of essential Equipment (specifications and price list) for AIT facility. GISTDA will procure this Equipment by other source of fund, not part of this project. GISTDA plan to have a 100kg satellite-level AIT cleanroom facilities, including Thermal VAC and shaker only. AIT building plan will be provided. For other environment tests such as mass property and others, the bidder shall provide management plan for testing at other places.
- Q2-11 With reference to article 11.1 of the “Instruction to Bidders” document, will a bid quoted in another currency than Thai Baht, be considered as “failed”?
- A2-11 Yes, considered as failed, pursuant to Clause 11.1 of the Instruction to Bidders.

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- Q2-12 The Instruction to Bidders states in 25.8 and 20.14 that bids that exceed the budget for the contract shall not be considered. Should bidders interpret RFP Attachment 5 to represent GISTDA's final budget for the THEOS-2 program?
- A2-12 The budget for the project is tentatively 7,000 MTHB.
- Q2-13 Will GISTDA draw on the Bid Security (Bid Bond) if a bidder submits a proposal that is rejected or exceeds the program budget?
- A2-13 The Bid Security will be returned pursuant to Clause 13.7 of the Instruction to Bidders.
- Q2-14 If RFP attachment 5 does not represent GISTDA's final budget, please provide the magnitude of GISTDA's THEOS-2 final budget funding request.
- A2-14 Please see A2-12.
- Q2-15 Will GISTDA accept a proposal that takes exception to the Conditions Precedent (Article 5.5), but agrees that the effective date of the contract shall not occur until after a Government to Government MOU has been signed?
- A2-15 GISTDA could not take the exception to the condition precedent regarding the MOU as mentioned in clause 29.4 of the ITB. The MOU shall be executed on or before the execution date of THEOS-2 Contract.
- Q2-16 Please consider granting an extension of proposal delivery date by 30 days to allow for learning from Bidder's Conference to be incorporated into proposal.
- A2-16 The extension of the proposal delivery date is at sole discretion of GISTDA. However, it shall be done only for the sake and benefits of the procurement of THEOS-2. Moreover, it shall not be extended for the benefits of any specific prospective bidder.
- Q2-17 RFP specifies Contractor is responsible for a Government to Government MOU with significant conditions and financial impact (bid bond forfeiture) if the MOU doesn't closed within 14 days of award notification. We request that the RFP/contract language be changed to reflect that the MOU is a Government responsibility with Contractor support since bidders cannot be held financially liable for the Government to Government negotiations. This request aligns with the Draft Contract Article 43.2 which states that neither party to the Contract shall be liable for the refusal of a Government to authorize an export.
- A2-17 The idea of the MOU is that it has to be executed on or before the date of the execution of THEOS-2 contract. Draft contract clause 43.2 is written under the

understanding of GISTDA that the approval of the export license is the absolute power of the state authority concerned of the bidder's country. Therefore, GISTDA drafted clause 43.2 to correspond with such idea. As a result, there is no need to amend the contract.

With respect to the draft Contract, please note that the provisions of Article 43.2 of the draft Contract does not govern or apply in the stage as described above (on or prior to the execution of Contract); Article 43.2 govern the situations/events which incur after signing (contract implementation). Under the draft Contract, the execution of the MOU is only required as a conditions precedent to the effectiveness of the Contract (Article 5) and Article 5.5 clearly states that that condition is required to be fulfilled on or before the execution of the Contract. Therefore, this is not the same.

(Please be advised that the draft MOU has been revised to suit THEOS-2 Project. The current version of draft MOU is published on GISTDA website on 16 FEB 2017)

Q2-18 Is the desire for the bidders to develop their own draft contract appendices (e.g., SOW) or will GISTDA be providing them to the bidders?

A2-18 Please see A2-8.

Q2-19 What is Appendix C Section1 – System Presentation?

A2-19 Appendix C Section 1 - System Presentation in the “Annex 2 Form of Agreement” refers to a short summary of the proposed system, its functionality and its interoperability with the existing system.

Q2-20 What is Appendix C Section 2 – Development Plan? Is this the Business Development Plan that is requested in Appendix 9 of the Instruction to bidders?

A2-20 Appendix C Section 2 – Development Plan refers to that requested in Appendix 8 of the Instruction to bidders

Q2-21 Article 8.1 items D and E of the Draft Contract have prices listed as Baht one hundred million and Baht four hundred sixty million. How should the prospective bidders interpret these amounts?

A2-21 Under the final (execution) Contract, the amounts under paragraphs D and E of Section 8.1 shall be revised to reflect the number as finally agreed by the parties.

Q2-22 Bidders Instructions specifies a requirement for SKP SmallSat AI&T Plan, however, the Contract specifies a requirement for AI&T facility. Please clarify whether

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Bidders are to provide the facility and equipment, or a plan for GISTDA to implement.

A2-22 Please see A2-10.

Q2-23 Please consider offering a brief private venue with GISTDA leadership for each Contractor during the Bidder's Conference to address proprietary items of the prospective Contractors' bids.

A2-23 Pursuant to Clause 14 of the Instructions to Bidders, the Pre-Bid meeting, Site Visit and Clarification is held at SKP on 20160216.

Q2-24 In case of a consortium, can a trading company who is the member of the consortium in charge of commercial works including local communication, bid securities, advance payment guarantee, performance guarantee and payments receive payments from GISTDA when the related conditions of contract are fulfilled?

A2-24 The assignment of the payment can be done after the execution of the contract. The payment will be executed according to the conditions agreed in the contract.

Q2-25 Please confirm that a Complete set of documentation is enough for Bidders as Single Bidder, or Consortium, or Joint Venture.

A2-25 Please see A2-2.

Q2-26 Please confirm that if in a Consortium only the Prime Contractor has bought the Documentation, the references relevant to the BID (i.e. previous experiences, contracts etc.) could be presented in the bidding process both from the Prime Contractor and the other member of the Consortium.

A2-26 Please see A2-2.

Q2-27 Please confirm that if in a Consortium only the Prime Contractor (with a single request in name of the Prime Contractor itself) has bought the Documentation, the references relevant to the BID (i.e. previous experiences, contracts etc.) could be presented in the bidding process both from the Prime Contractor and the other member of the Consortium.

A2-27 Please see A2-2.

Q2-28 Price Estimation Sheet (the hardcopy data in Thai language) Please clarify the Item 3.10 weather it is an EM or a satellite simulator for the small satellite.

A2-28 Item 3.10 refers to an EM (Engineering Model).

- Q2-29 Definition (roles & responsibility and qualification requirement) of prime contractor, consortium member and sub-contractor.
- A2-29 Please see A2-2.
- Q2-30 Instructions to Bidders Document Clause 25.8 – This clause states that bid prices which exceed the approved budget for the contract documents shall not be considered. The Cover Letter for the Bid documents suggested that the budget has not yet been approved. The provided PDF file “Cost Estimate” suggests a total budget of 7 Billion Baht. Please clarify whether bids with a total price of over 7 Billion Baht will be rejected. If this is not the case, please clarify the clause and state the rule for rejection of a bid due to price issues.
- A2-30 Bids with a total price of over 7,000 MTHB will be rejected, pursuant to Clause 20.14 and 25.8 of the Instructions to Bidders.
- Q2-31 Contract Document – Section 6.1 a(vi) – National Security Ground Segment - The customer requirements for the National Security Ground Segment are not clearly defined in the bid documents. Please provide a clear set of requirements for the National Security Ground Segment in the form of a requirements specification – please ensure this addresses (at a minimum): required functionality, interfaces, and performance.
- A2-31 With respect to the draft Contract, the clear definition and description of “National Security Ground Segment” shall be added in the final (execution) Contract to reflect the final agreed term. Related descriptions are also provided in Appendix 5 of the Instructions to Bidders.
- Q2-32 Contract Document – Section 6.1 d(i) – High Security IT Infrastructure – and NSDI – The customer requirements for this capability are not clearly defined in the bid documents. Please provide a clear set of requirements for the High Security IT Infrastructure – and NSDI in the form of a requirements specification – please ensure this addresses (at a minimum): required functionality, interfaces, and performance.
- A2-32 With respect to the draft Contract, the clear definition and description of “High Security IT Infrastructure – and NSDI-” shall be added in the (execution) Contract to reflect the final agreed term between the parties. The IT Infrastructure will be provided by GISTDA. Minimum requirements should be identified.

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- Q2-33 Contract Document – Section 8.1 (d) & (e), please confirm whether references to “one hundred million baht” in (d) and “four hundred sixty million baht” in (e) are errors. If they are errors, please provide amended wording.
- A2-33 Please see A2-21.
- Q2-34 Instructions to Bidders Document Clause 25.3 (2) – Please define the term “Provisional Sumas”.
- A2-34 This is a typing error. The correct word is “Provisional Sums”.
- Q2-35 Paragraph 15.3 in the Bidder instructions call for submission of “clean” documents. Does it refer to hand writing correction or also to track changes (for example – draft contract)?
- A2-35 Pursuant to Clause 15 of the Instructions to Bidder, the original and all copies of the bid shall be typed or written in indelible ink. Corrections shall be valid only if they are signed or initialed by the person or persons signing the bid and stamped. Track changes version can be submitted. In case of discrepancies, the original version shall prevail.
- Q2-36 As the proposal becomes an appendix to the contract, how to refer to options?
- A2-36 The final (execution) Contract shall reflect the agreed term (including the available options or selected options, if required prior to signing). The proposal is required to be attached as an integral part of the Contract provided that in case of conflict or consistency, the order of precedent (in Section 4.1) shall govern.
- Q2-37 Transfer of risk to the satellite is at the point of intentional ignition of the Launch Vehicle. It is in conflict with the requirement for launch and in orbit insurance.
- A2-37 The transfer of risk at the point of ignition is a stated fact when there is no launch and in orbit insurance applied. However, as GISTDA also requires that the launch insurance for both main and small satellite to be provided (refer to pricing breakdown table in Annex 4). Hence any risk occurred during launch shall be covered.
- Q2-38 “Cost Estimate” document (no. 5 in the RFP’s set of documents) indicates figures for the various project content. Please advise what would be the effect of deviations from these specific figures? Furthermore, some items / deliverables do not include reference for any pricing.
- A2-38 Bidder can propose deviations from these specific figures and have to follow Annex 4 in the Instructions to Bidders while the total price shall not exceed 7,000 MTHB.

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- Q2-39 Please clarify whether, a detailed Milestone Payment Plans (in the T&C's) has to be submitted with the Bid?
- A2-39 Tentative detailed Milestone Payment Plans shall be submitted with the Bid.
- Q2-40 Sec. 1.2 (Schedule) provides that the total project time is 1826 days. Are public and religious holidays excluded from this time?
- A2-40 All days given in the Instructions to Bidders refer to consecutive calendar days, including public and religious holidays.
- Q2-41 Sec. 11.1 & 11.2 (Currency) provide that unit rates and prices shall be quoted, and payments will be made, in Thai Baht only. However, we note that the Draft THEOS-2 Contract, Sec. 12.4 (Payments) states that payments will be in Thai Baht unless otherwise mutually agreed. Is it possible to submit a Bid and receive payment in US Dollars? (We assess it will reduce costs associated with exchange rate fluctuation).
- A2-41 According to the Instructions to Bidders, the payment shall be made in Thai Baht.
- Q2-42 Sec. 11.4 (Currency) provides that bidders may be required to "clarify their foreign currency requirements". Please clarify what is the meaning of this clause.
- A2-42 The meaning of this clause is that the Thai Government may desire to know that how much is the outflow of the foreign currency from Thailand to the bidder's country after the currency conversion of the payment under THEOS-2 contract.
- Q2-43 Sec. 11.5 (Currency) provides that the foreign currency requirements "may be adjusted by agreement between GISTDA and the Contractor". Please explain when and how this would be done. Would there be a formula for such adjustments? If yes, is the bidder to propose such a formula? How often would the adjustment be done?
- A2-43 Referring to A2-42, the currency conversion might be changed from time to time due to the exchange rate. As a result, the foreign currency requirement might be adjusted in order to fit in the real outflow of the foreign currency of Thailand.
- Q2-44 Sec. 11.6 (Payment) – with respect to the payments after the advance payment, can the Contractor be paid by means of a mutually agreed documentary, irrevocable letter of credit to be issued by a first class international bank (rather than wire transfer)?
- A2-44 No.

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- Q2-45 Sec. 13.2 (Bid Security) – sub-paragraph (7) that the bid security may be in “other formats” subject to GISTDA approval. Is it possible to submit a company guarantee (rather than a bank guarantee)?
- A2-45 No. Nonetheless, GISTDA would prefer cashier’s cheque or bank guarantee as specified in Clause 13.2.
- Q2-46 Sec. 20.6 and 20.7 (Bid Evaluation)
- Is it possible to request modifications to the Bid Documents?
 - Is it possible to submit the Bid Documents marked up with changes or with a compliance table (showing partial compliance or non-compliance to certain requirements)?
- A2-46 The bidder shall follow the requirements provided in the Instructions to Bidders at minimum.
- Q2-47 Annex 1A (Form of Bid) mentions the price and is required to be included in the Technical Proposal (see Sec. 9.1). Is this correct? Can the price be included in the Technical Proposal? If not, how is it to be submitted?
- A2-47 The bid shall comprise the Technical Proposals and Pricing Documents pursuant to Clause 9.1. Price information shall not be filled in the Technical Proposals although the Forms present (leave the price information field blank).
- Q2-48 Annex 1B (Form of Bid Security) has to be equal to 5% of the Bid Price (and in this manner also discloses the price) and is to be included in the Technical Proposal (see Sec. 9.1). Is this correct? Can the price be included in the Technical Proposal? If not, how is it to be submitted?
- A2-48 Pursuant to Clause 13.1, Contract Price refers to Budget Price (7,000 MTHB). Thus all bidders shall furnish a bid security in the amount of 350 MTHB.
- Q2-49 Annex 2 (Agreement), provides for a list of documents that are part of the contract. The list includes all types of documents in addition to the Contract. This may cause confusion / contradiction. Can the Contract be limited to the Contract and its Appendices only?
- A2-49 Annex 2, Form of Agreement has been replaced to suit THEOS-2 Project. As a result, the contract is now limited to the Contract and its Appendices only.

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- Q2-50 Annex 2 (Agreement), provides for a list of documents that are part of the contract. However, the Draft Contract (at Clause 4.1) provides for a list which is partially different than the list at Annex 2A.
- a) Please reconcile the differences between the lists;
 - b) The list at Clause 4.1 of the Draft Contract contains documents that are prior to the date of the contract (such as the Terms of Reference and the Contractor's Proposal). Normally these documents are superseded by the Contract which reflects the complete agreement of the parties. Is it possible to remove these documents from the list?
- A2-50 Annex 2, Form of Agreement has been replaced to suit THEOS-2 Project. Please ignore the current Form of Agreement and use the new one as published on GISTDA website dated 16 FEB 2017.
- Q2-51 Annex 3 (Advance Payment Bank Guarantee Format) - Can we add a provision for pro rata reduction in the value of the bank guarantee against the delivery of hardware and performance of services? Such reduction provisions are customary in advance payment bank guarantees.
- A2-51 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.
- Q2-52 Draft THEOS-2 Contract, Sec. 1.17 and 1.19 (Definitions) – The definitions of Launch and Launch Failure (or Total and Partial Loss and Constructive Total and Partial Loss) are standard in the industry and are intrinsically tied to the definitions used in the Launch Service Contract and the Launch Insurance Policy. Accordingly, can these definitions be modified to provide that they will be the same as those terms will be defined in these agreements?
- A2-52 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.
- Q2-53 Draft THEOS-2 Contract, Sec. 7.1 (Subcontracting) – the clause provides that GISTDA has to approve the subcontractors and any change in subcontractors. May this be change to “major subcontractors” (e.g. subcontractors whose subcontract is above a certain value)?
- A2-53 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.

- Q2-54 Draft THEOS-2 Contract, Sec. 11.1 (Taxes, Duties, Special Documents and Licenses) – The provisions of the first paragraph of Section 11.1 appear to contradict the provisions of the first paragraph of Section 8.2. Please reconcile.
- A2-54 The first paragraph of Section 8.2 merely clarifies that the Contract Prices (listed in Section 8.1) do not include (among other things as described therein) any and all taxes levied in Thailand but the first paragraph of Section 11.1 determines which party shall be responsible for the relevant taxes incurred.
- Q2-55 Draft THEOS-2 Contract, Sec. 18.2 (Delays) – Is it possible to add a grace period before application of penalties? Is it possible to propose a different rate of penalty? Is it possible to place a cap on the total penalties for delay (a cap of 5% (equal to the value of the performance guarantee) is reasonable)?
- A2-55 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly. Grace period might be added during the Contract Negotiation Phase. Rate of penalty could not be reduced / limited.
- Q2-56 Draft THEOS-2 Contract, Sec. 37 (Limitation of Liability) – is it possible to add a limitation of liability for the Contractor?
- A2-56 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly. Limitation of liability might be modified in the Contract Negotiation Phase to fit in THEOS-2 Project.
- Q2-57 Draft THEOS-2 Contract, Art. 13.1 (Undertaking to Perform and Performance Guarantee) – this clause appears to duplicate the provisions of Art. 28 (Warranty). Please explain the difference?
- A2-57 The provision of Art. 13.1 shall govern the performance of the Contractor in performing work before acceptance (an agreement that certain things or matters shall be done in such manner as described therein) the breach of which (failure to do so) shall result in the Contractor's default. The provision of Art. 28 (Warranty) specifies the Contractor's warranty for any equipment or products provided by the Contractor (including material or works performed by them) to be in accordance with the Contract, and mainly determines the Contractor's responsibility with respect to any defect which occurs during the warranty period (being after acceptance) as specified in the respective clause of Art. 28.
- Q2-58 Draft THEOS-2 Contract, Art. 27.2 (Acceptance of Work) – is it possible to add a time frame by which the Customer's Acceptance Committee must accept or reject

the Work presented for acceptance – e.g. within 5 work days of the date of presentation of the work?

A2-58 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.

Q2-59 Draft THEOS-2 Contract, Art. 28 (Warranty) – the warranty period is not stated. In the Instructions to Bidder, Appendix 7 (Capacity Building and Technology Transfer), Para. 4.1, it is mentioned that a 3 year warranty is required for hardware and software (after final system acceptance). Please clarify what is the required warranty period for: (a) The Satellites; (b) The Ground Segment.

A2-59 Please follow the Instructions to Bidder. The 3-year warranty required for hardware and software (after final system acceptance) applies for the proposed system with an exception to the satellites. The satellites shall be protected by an insurance proposed by the bidder which at least includes the 3-month In-Orbit Test.

Q2-60 Draft THEOS-2 Contract, Art. 28 (Warranty) – the warranty period for the satellite is defined to end upon the earlier of (i) a TBD period of time, and (ii) the intentional ignition of the Launch Vehicle. The definition of “intentional ignition” and/or “launch” is intrinsically connected to the terms of the launch insurance policy. Is it possible to change this provision so that it will be consistent with the terms of the launch insurance policy?

A2-60 Please see A2-51.

Q2-61 Draft THEOS-2 Contract, Art. 28 (Warranty) – in Art. 28.2, 28.3 and 28.8 the periods of time are undefined. Is there any defined minimum amount of time for these clauses?

A2-61 Please see A2-59.

Q2-62 Draft THEOS-2 Contract, Art. 28 (Warranty) – in Art. 28.3 the period of time may be extended (e.g. launch may be delayed) for reasons not attributable to the contractor. Is it possible to add an exception for delays in launch which are not caused by the Contractor?

A2-62 The exception matter is already mentioned in clause 17 of draft THEOS-2 contract Force Majeure. This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly. Moreover, the grace period might be negotiated at the Contract Negotiation Phase.

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Q2-63 Draft THEOS-2 Contract, Art. 28 (Warranty) – in section 28.8, please explain the difference between this warranty provision (for hardware and software products) and the warranty under sections 28.2 and 28.3?

A2-63 Please see A2-59.

Q2-64 Draft THEOS-2 Contract, Art. 28 (Warranty) – is it possible to add a warranty disclaimer stating that the warranties set forth in the contract are the only warranty being provided?

A2-64 Please see A2-59.

Q2-65 Draft THEOS-2 Contract, Art. 29 (Indemnification) – in Art. 29.3, the inter-party waiver of liability does not cover loss/damage or injury/death caused by negligence. The usual practice is to exclude gross negligence from the waiver (but to include negligence in the waiver). Is it possible to modify this provision according to the usual practice?

A2-65 Please see A2-51.

Q2-66 Draft THEOS-2 Contract, Art. 30 (Insurance) – kindly clarify what is the price that is referenced at the end of Art. 30.6. Is it the total price of rebuilding and relaunching a satellite?

A2-66 It is an insurance premium to cover rebuild and relaunch a replacement satellite.

Q2-67 Draft THEOS-2 Contract, Art. 31 (Transfer of Title & Risk) – in Art. 31.2 we note that the statement “point of intentional ignition of the Launch Vehicle” is not consistent with the definition of Launch (in Art. 4).

a) Do you agree that they should be reconciled?

b) As noted above, do you agree that they should all be reconciled with the terms of the launch insurance policy?

A2-67 Please see A2-51.

Q2-68 The article 13.2 (3) “An Irrevocable letter of credit or bank guarantees issued by a bank which is registered and authorized to do business in Thailand or a foreign bank through a correspondent bank in Thailand and in the format included in ANNEX 1B; or” This phrase means that we can provide a bank guarantee issued by a foreign bank such as banks in Korea. And the foreign bank advises it to its correspondent bank in Thailand. Is It correct? Or shall the foreign bank counter guarantee to the bank in Thailand?

A2-68 It could be foreign bank that has a branch in Thailand.

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- Q2-69 The article 13.1 “The bidder shall furnish, as part of its bid, a bid security in the amount of five (5) percent of the Contract price in Baht or an equivalent amount in a freely convertible currency.” This phrase means that we can issue a bid bond in USD. Is it correct? Or when we issue a bid bond in THB, which exchange rate shall we use?
- A2-69 Yes, by using the exchange rate at the date of issuance. The bank shall also provide certificate regarding the exchange rate used.
- Q2-70 (Page 12) A documents named "Reference Information" shall be submitted with the technical proposal. What is the expected content of this document?
- A2-70 Any reference information with respect to the proposed technical content can be provided.
- Q2-71 It is mentioned that submitted documents will be checked against a check-list of required documents. Can you provide the check-list?
- A2-71 The checklist follows Clause 9.1 of the Instructions to Bidder.
- Q2-72 Is it acceptable for GISTDA to receive a bid by company A as prime and subsidiary B as sub-contractor. And, another bid by another prime where subsidiary B will be once more subcontractor?
- A2-72 Yes, subcontractors are allowed to be listed by more than one bidder.
- Q2-73 Is there a draft or a template for the Memorandum of Understanding on Cooperation in the Earth Observation System for Development Project (THEOS-2)? What is the nature of this MOU : spatial cooperation or government to government agreement ?
- A2-73 Yes, details as attached in appendix G of the new Form of Agreement published on 16 FEB 2017. The nature of this MOU is between GISTDA and the state authority concerned of the bidder's country.
- Q2-74 Could you please clarify the difference or link between the Annex 2 of the RFP Form of the Agreement, and the draft contract supplied in the bid package?
- A2-74 It has to be the same document. The Form of Agreement Annex 2 has been replaced by the new one which has the same content as the draft contract supplied in the bid package.
- Q2-75 What are the document referred in the second paragraph (2) of the Annex 2 Form of the Agreement? In particular, what are the documents "c.The Conditions of Particular Application (PartII)" "d.The General Conditions" referring to?

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- A2-75 Annex 2, Form of Agreement has been replaced to suit THEOS-2 Project. As a result, the draft contract supplied in the bid package has been used instead of the previous one.
- Q2-76 TOR (Term Of Reference): What will be the content of the TOR which will be Appendix A of the Contract?
- A2-76 TOR (Term Of Reference) is the same as Instructions to Bidders.
- Q2-77 Article 2.1 paragraph a) of the Instructions to Bidders sets out that the Bidders shall provide “A copy of Company Registration Certification (Certified true and correct by authorized person) or the latest Affidavit of Company – Said Affidavit should have the details of the company name, the location of the company, the registered capital, authorized signatories and company’s objective or a copy of the Prospectus of the company (Certified true and correct by authorized person)”. Through the document named “List of Corporate Document of Foreign Contractor” we understand that each of those documents shall be provided. Can you please confirm if the Bidder have to provide each of those documents or only one of those documents? Also can you precise what do you expect as the Prospectus of the company? Are you looking for a document delivered by the public authorities or a document drafted by the company?
- A2-77 Document delivered by the public authorities.
- Q2-78 With reference to article 11.1 of the “Instruction to Bidders” document, will a bid quoted in another currency than Thai Baht, be considered as “failed”?
- A2-78 Yes, considered as failed.
- Q2-79 (Annex 4) Could you please clarify the meaning of "Unit"? Is it the unit price? Could you please clarify the meaning of "Rate"? Is it the quantity?
- A2-79 Unit refers to quantity while Rate refers to Price / Unit.
- Q2-80 Is Form of Bid (Annex 1A) or Bid Form (supplied within the Bid Package) that we have to provide in the Volume 2 "Pricing Document"?
- A2-80 Please provide both.
- Q2-81 Referring to “Instructions to Bidders” document, paragraph 2 – Eligible Bidders, subparagraph 2.3, I kindly ask you to confirm the following issue: According to what reported in 2.2 - section e), is it allowed for a Bidder to participate in more than one Bid simultaneously (e.g. in consortium and as subreseller).

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- A2-81 No. Bidder could not participate in more than one Bid referring to the “Co-Interest Bidder” provided under A1-6. Nonetheless, the interested parties may participate as subcontractor which is the internal relation between the Bidder and such entity.
- Q2-82 Please confirm the duration to be covered by the contract – is it a five-year project with an optional extension of 10 years, or is the duration 5 years (1826 days) for design, build and launch and then 10 years for operation as described in Appendix 8?
- A2-82 5 years (1826 days) for design, build and launch and then 10 years for operation as described in Appendix 8.
- Q2-83 There is a requirement to include a ‘detailed breakdown of our foreign currency requirements.’ Does this mean that we need to specify the rates we have used and provide a conversion for each item on the Bill of Quantities? During delivery of the works, the ‘outstanding balance of the contract price’ may be adjusted to reflect currency exchange changes – please explain the mechanism for this.
- A2-83 Please refer to A2-42 and A2-43.
- Q2-84 We understand that GISTDA will only sign a contract when confirmation of budget is confirmed. Could GISTDA please share where they are in the process with respect to securing project budget. Could GISTDA please advise whether the budget allocation across work packages will be used?
- A2-84 The project has been submitted for Cabinet’s consideration.
- Q2-85 Please advise whether bidders are permitted to comment on the draft contract provided with the invitation to tender documentation. Could GISTDA please confirm that comments on the draft contract will not deem a bid non-compliant or partially non-compliant?

Also, we are unsure regarding the status of the appendices referred to on page 1 of the draft contract. Please could GISTDA confirm the status and availability of these documents?:

- Appendix A (Terms of Reference (TOR))
- Appendix B (Technical and Performance Specification)
- Appendix C (Statement Of Work)
 - Appendix C Section 1 – [System Presentation]
 - Appendix C Section 2 – [Development Plan]

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- Appendix C Section 3 – [Training Plan]
 - Appendix G (Form of Memorandum of Understanding)
- A2-85 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly. The bidder is permitted to comment on the draft contract. Contract could be modified during the Contract Negotiation Phase to fit in THEOS-2 project. The bidder shall also provide content for Appendix B to Appendix F.
- Q2-86 Could GISTDA please confirm the timescale for selecting the preferred bidder?
- A2-86 Tentatively at the end of April 2017.
- Q2-87 Could GISTDA please confirm if bidders must submit a response to every requirement in the ITT documentation package? Our understanding is that to submit a compliant bid every requirement must be responded to but confirmation would be appreciated.
- A2-87 Yes.
- Q2-88 Could GISTDA please confirm that consortium sub-contractors/key suppliers do not need to have a business registration in Thailand to deliver their element of the project?
- A2-88 Yes.
- Q2-89 The Instructions to Bidders includes a Form of Bid (Annex 1A) that differs with the Bid Form included in the purchased Bid Documentation. Should the bidders interpret Annex 1A to be submitted in the Vol 1 - Technical Proposal and the Bid Form to be submitted in the Vol 2 - Pricing Documents?
- A2-89 A Form of Bid (Annex 1A), with the price information left blank is required in Vol 1 - Technical Proposal. A Form of Bid (with price information) and the Bid Form included in the purchased Bid Documentation is required in Vol 2 - Pricing Documents.
- Q2-90 The Form of Agreement references "The Conditions of Particular Application" and the "General Conditions". Are these two references to be interpreted as the Draft Contract?
- A2-90 Annex 2, Form of Agreement has been replaced to suit THEOS-2 Project. As a result, the draft contract supplied in the bid package has been used instead of the previous one.

Q2-91 The Instruction to Bidders 5.3 (p9) states that the Bid Documents (including the Instructions to Bidders) are for guidance only and will not be incorporated into the Contract. These Instructions to Bidders are referred to as the "Terms of Reference" in 15.1 (p17) of the same document. However, the Draft Contract states that the Terms of Reference will be incorporated into the Contract as Appendix A. Please clarify.

A2-91 Bid Documents are the guidance for the Bidder to propose its proposal to GISTDA. The proposal and TOR are required to be attached as an integral part of the Contract provided that in case of conflict or consistency, the order of precedent (in Section 4.1 of the Contract) shall govern.

Q2-92 Article 11.7 of the Draft Contract states that "The Party (as designated in the TOR) shall obtain and bear all costs incurred in obtaining any International permits, clearance, coordination and licenses required for launching and operating the Satellites." A breakout of licenses and responsible parties could not be found in the TOR. Please clarify what licenses are expected to be procured by the Contractor.

A2-92 All licenses that are required to finish the Works specified in the Instructions to Bidders.

3. Appendix 1: Background

Q3-1 Given that THEOS-1 is approaching end of life, is there a need to accommodate THEOS-1 from an architecture or mission operations perspective?

A3-1 It is not required to accommodate THEOS-1 on architecture and operation perspective but can be proposed as an option.

Q3-2 Appendix 1 pg 45 states "The THEOS-2 shall connect and integrate GIS data of land, air and water from related organizations and data monitoring stations." Please describe the output format from the data monitoring station.

A3-2 Bidder shall be required to survey and propose.

Q3-3 Appendix 1 pg 45 requires current and future archives to be integrated. Please describe the content of the current archive (e.g., size, # of images, format of images).

A3-3 The size of GISTDA legacy archive is 1 PB (1012 Bytes). The current interface for data transfer is LAN (Local Area Network). ICD is not available but the data are standard format of THAICHOTE, LANDSAT series, SPOT series, ALOS, RADARSAT 1 and 2, COSMO-SkyMed and IRS 1C and 1D etc. Data transfer is contractor's responsibility.

4. Appendix 2: Prelude to Insight of Bid Requirement Context

Q4-1 Holistic Management in Decision Making and Spatial Management – As this item makes up a large part of the total THEOS-2 budget, it would be helpful to summarize the requirements for this item and identify the relevant parts in the Terms of Reference that apply. For example, how does this item relate to the Holistic Executive Support System (HESS) shown in Figure 3 of Appendix 2? Are they the same? How does this item relate to IT infrastructure? Note that IT infrastructure appears in the Pricing Document in Annex 4 but not the Budget Breakdown (“5. Cost Estimate.pdf” file).

A4-1 This idea / matter reflects GISTDA’s requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.

5. Appendix 3: Requirements for Solutions and Applications

Q5-1 In order to address national security clearances, bidders need additional information regarding the criteria for needing a security clearance, the eligibility requirements for the needed clearances, and the process for obtaining clearances. Please provide.

A5-1 The contractor could process for the security clearance since the beginning of the project. The contractor can provide information on the number of staff and relevant working plan / site access. The copy of passport / national ID is required. The processing lead time is generally 45-60 days.

Q5-2 The RFP references the need to handle and integrate classified national security data. Please provide the requirements applicable to the proper handling of this type of data so that it is incorporated in our Program Plans.

A5-2 Bidders shall access to classified data/information will be on case by case. GISTDA will be the point of contact.

Q5-3 Distributed Architecture – Section 5.1 and the application descriptions in Appendix 3 request that the submission describe the architectural design for the end user organisations “and/or the local government offices including hardware, software and any third party products”. Although the major user organisations are identified, the number of, and distribution of, local government offices needs to be provided in order to be able to estimate the cost of the solution. Please provide an indicative list of the locations that require access to application capabilities for each organization

and application area together with anticipated communications bandwidth available at each location.

A5-3 Shall cover at least those provinces in the targeted area referred to Fig 9.

Q5-4 (Core product requirements Page 70) It is not clear whether the tender (core products) asks for maps or for images to be used for mapping or both. System requirements and objectives are not clear: is it a system to make maps? To make mosaics of images? To manage core products database? Does GISTDA want to acquire a mapping production capability?

A5-4 Automatic systems for image processing, digital photogrammetry and cartographic design to store, create, edit, update and service the core products at various scale of maps.

Q5-5 (Thematic applications Page 71-97) Are there some domains of applications more important than others?

A5-5 No particular domain is more important than others.

Q5-6 (Natural resources and ecosystem p. 83 & 84) The purpose of the service wanted is partially unclear (base map for carbon credit; verification of land encroachment). Would it be possible to have more details on the operational service expected? Likewise, clear specifications for "forest inventory, mapping, measuring and monitoring" and "forest modeling" would be appreciated.

A5-6 The specifications of this part are already given in the Instructions to Bidders crisp and clear.

Q5-7 Regarding the Geospatial platform, is this envisaged to be a complete managed service by the bidder or will it be expected to be solely operated by the client?

A5-7 Once completion of acceptance process, it will be operated by the client.

Q5-8 Does the Geospatial platform need to be provided as an open source solution?

A5-8 Not necessary

Q5-9 How many users are expected to use the Geospatial applications?

A5-9 Bidder shall be required to survey and propose.

Q5-10 Could GISTDA give more information about what is meant by the term 'Cloud Free'?

A5-10 No clouds and cloud shadows.

Q5-11 Could GISTDA please estimate the number of Features expected to be captured and maintained in the Area of Interest in Fig. 9?

A5-11 All features listed in ITB are expected, at minimum.

Q5-12 Whilst it is recognised that near real time capture and update is an ambition, could GISTDA please provide information on the current change and maintenance programme of the current data holdings?

A5-12 Near real time capture and update depend on the application and situation case by case.

Q5-13 Could GISTDA please clarify whether any data model exists at present and whether there are any constraints on the usage and/or change of that data model? If a data model already exists, please could details be provided?

A5-13 Bidder shall be required to review. Please visit to web portal of those agencies defined in Appendix 3.

Q5-14 Could GISTDA please confirm whether there are any existing data products produced from existing systems? If so, please provide details on the structure of the products, whether they would need to persist following the implementation of this project, and what release cycles exist?

A5-14 Bidder shall be required to review. Please visit to web portal of those agencies defined in Appendix 3.

Q5-15 Could GISTDA please provide details on existing Geo-spatial technology licences to supplement the table provided in section 2.6 of Appendix 11.

A5-15 Existing licenses are GISTDA internal use only and may not count in THEOS-2 which provide by bidder.

Q5-16 Please confirm whether data is being published as “open” (i.e. free at the point of use) or is there a need for commercial services around dissemination of data and access to services?

A5-16 Published as open for government organizations. Not for commercial services.

Q5-17 Please provide details about existing applications and products (page 69) e.g. please identify systems, data, technologies, hosting, connectivity

A5-17 Bidder shall be required to review.

Q5-18 Please advise as to expectations in terms of ongoing operational support and management of the platform following delivery and acceptance

A5-18 Bidder is required to provide the maintenance support following system delivery and acceptance (refer to ITB). For ongoing operation, it is most likely to extend the coverage area of the solutions for the whole area of Thailand.

6. Appendix 4: Requirements for Provision of External Data

Q6-1 In the first paragraph of Appendix 4 (page 98) there is reference to another Annex. The annex identification appears to be missing. Was the intent to reference Appendix 11?

A6-1 A missing annex refer in Appendix 4 is to Appendix 11.

Q6-2 Appendix 4 of the Instruction to bidders states, "Datasets during Project Development Phase shall be included in the THEOS-2 proposal with the duration covering the solutions and applications development, integration, test, and user's training" (p98). Is it correct to assume that the bidder's proposal should identify datasets used, and once contract is awarded sample data for each sensor will be made available for solutions and applications development, integration, test, and user's training?

A6-2 Yes, the proposal has to include the identification of datasets for each sensor (that will be made available for solutions and application development), integration, test and user's training. Once contract is awarded the external data has to be provided according to appendix 4.

Q6-3 The "project development phase" is defined as duration "sufficient for solutions and applications development", which is understood as 2.5 years according to the table on page 148. Is this correct to understand that the external data provision is to be made for 2.5 years and additional 7.5 years is an option for 10 year of project operation?

A6-3 Refer to Appendix 4; "Datasets during Project Development Phase shall be included in the THEOS-2 proposal with the duration covering the solutions and applications development, integration, test and user's training". Therefore, the bidder shall provide the external data for 5 years of Project Development Phase.

Q6-4 Instructions to Bidders Document: Annex 4 – Ground Receiving Station Backup - The customer requirements for the Ground Receiving Station Backup capability are not clearly defined in the bid documents. Please provide a clear set of requirements for the Ground Receiving Station Backup in the form of a requirements specification

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- please ensure this addresses (at a minimum): required functionality, interfaces, and performance.
- A6-4 Ground Receiving Station Backup refers to a replication of the downlink and processing system. The intention of this station is to backup in case of main system (Si Racha) malfunction which is the standard practice of GISTDA and many other space agencies. The station is preferably located within Thailand (highly secured area). The Bidder may propose otherwise. GISTDA will rate/score accordingly.
- Q6-5 The following items appear in the Budget Breakdown (“5. Cost Estimate.pdf” file) but not in the Pricing Table. Where should the following items be included in the Pricing Table?
- a) Downstream Applications;
 - b) System Wide Scale Map;
 - c) Holistic Management in Decision Making and Spatial Management
- A6-5 The above three items appear in “Solution and Applications” of ANNEX 4 Pricing document.
- Q6-6 Other sensors (e.g., UAV’s, Ground Sensors) – In Appendix 4 “Requirements for Provision of External Data” there is reference to the solution utilizing other sensors/sources, beyond the proposed satellites as data sources. Please confirm that:
- a) The proposed system design should support interfaces to these other sensors/sources (e.g., UAVs);
 - b) These other sensors/sources (e.g., UAVs) will be provided by GISTDA as government furnished equipment (GFE) along with required documentation, including interface specifications, to the contractor at no cost to the contractor.
- A6-6
- a) Yes, proposed system shall design to support those sensors/sources.
 - b) It is a contractor responsibility to obtain and provide dataset from those other sensors/sources. Not by GISTDA.
7. Appendix 5: Requirements for Very High Resolution Satellite and Small Satellite Systems
- Q7-1 SmallSat requirements have changed from TNT to high performance set analogous to a full operational system. Is it acceptable for contractor to perform performance vs. cost trade for an alternate SmallSat design?
- A7-1 Yes, alternate design may be proposed if it is proved equivalent to/ better than the requirements specified in the Instructions to Bidders.

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- Q7-2 The bidder must support/assist GISTDA to develop and modify GISTDA current ground software products (e.g., VOSSCA, WATER, EMERALD, OPTEMIS, SIPROS) used in CGS for THEOS-1 operation in order to be interoperable with Thaichote-2, Small Satellite and other operation system. Please confirm if there is flexibility for contractor to propose their own ground products for integration, where appropriate, for higher performance and/or lower risk while still assisting GISTDA to develop/mature their homegrown products.
- A7-2 Although not stated in section 4.1, the bidder has the flexibility and is encouraged to propose its own ground products (e.g. control ground software, image processing software) taken into account system functionality, performance optimization and risk mitigation aspect. However, the task of supporting/assisting GISTDA to develop and modify GISTDA current ground software products used in CGS for THEOS-1 operation in order to be interoperable with Thaichote-2, Small Satellite and other operation system is still applied.
- Q7-3 Please provide functional and performance specs, CONOPS documents, verification plans, software design documents, source code ICDs for the GISTDA ground software systems to prospective bidders for proposal development.
- A7-3 The concept of operation is already defined and provided in the appendix 5, the ICD will be provided by GISTDA accordingly. The contractor is able to propose the modification to ameliorate current GISTDA CONOPS.
- Q7-4 Ref. Appendix 5, para 4.4, what is the size of the “legacy” archive to be transferred to the THEOS-2 archives? What media or electronic interfaces are available for use in transferring data from the existing archives to the new archives? Are there ICDs available that describe the format and content of the images/metadata in the existing archives? Is the bidder responsible for performing the data transfer or is the Employer’s staff responsible for that task?
- A7-4 The size of GISTDA legacy archive is 1 PB (10^{12} Bytes). The current interface for data transfer is LAN (Local Area Network). ICD is not available but the data are standard format of THAICHOTE, LANDSAT series, SPOT series, ALOS, RADARSAT 1 and 2, COSMO-SkyMed and IRS 1C and 1D etc. Data transfer is contractor’s responsibility.
- Q7-5 Are there any Thai government standards that are applicable to the selection of a cipher system for the ground-to-spacecraft command communication link?

A7-5 None.

Q7-6 Are there any Thai government standards that are applicable to the selection of a cipher system to protect communications between the various ground system facilities?

A7-6 None.

Q7-7 Ref. Appendix 5, para 4.6, what requirements apply to the Mobile Ground Segment for characteristics affecting the transportability of a mobile system (e.g. constraints on size, weight, transportation shocks and vibrations, non-operating temperature/humidity/air pressure, planned modes of transport [aircraft, towed, loaded on truck], length of deployment, utilities available at deployed location [power, cooling, voice & data communications])?

A7-7 The mobile system will be ground transported either towed or loaded on transport vehicle. The system will NOT be deployed in any war zone or harsh environment area, it will therefore be subjected to environmental condition (e.g. vibration, temperature, humidity etc) similar to the one in which all regular ground transport vehicles are subjected to. Mobile system shall be equipped with necessary power supply and auxiliary system. Voice & data communication systems are not mandatory.

Q7-8 Ref. Appendix 5, para 4.6, what requirements apply to the Mobile Ground Segment for characteristics affecting the installation of a system on a sea vessel (e.g. constraints on size, weight, protection from salt water, non-operating temperature/humidity, maximum power consumption, available air conditioning, constraints on installation of receiving antennas)?

A7-8 Refer to Para 4.6, if bidder choose to propose the Mobile Ground System to be located on a sea vessel, the system shall be compatible with standard environment for nominal sea transport.

Q7-9 "Appendix 5, Section 4 – Midstream presents a specific ground system solution depicting an architecture, diagrams and element connectivity, specific names for each element, and a functional allocation to each element. What tolerance is there for variations in the architecture, naming conventions, functional allocation, etc.? If an alternative of the Appendix 5 architecture is offered, and that alternative provides equal or better functionality, performance and beneficial features for the (a)

constellations being serviced, (b) the THEOS system operator's and (c) the THEOS end user's, would that variant still be deemed responsive and compliant?

A7-9 The bidders can propose any alternate solution with equal or better functionality, performances and features. The proposed solution is to be provided with sufficient justification and to be discussed and decided with GISTDA prior to project execution.

Q7-10 Please reference the Instructions to Bidders, (a) Page 125, Paragraph 4.6 – Mobile Ground Systems, and (b) Page 116, Figure 13 – THEOS-2 satellite operation ground segment.

It is not clear that a literal interpretation of the statement “A replication of the downlink and processing system suitable for embedding as a mobile system or located on a sea vessel” is what was intended given the nature (physical size of an antenna system, power required, added cost) of the Image Ground Segment (IGS) and the X-Band Receiving Stations described in Figure 13 and elsewhere in the Instructions to Bidders.

Is the actual intent of Paragraph 4.6 to “replicate and embed the GI Portal and VAP functionality” and/or “replicate and embed the MUT functionality” in a mobile and/or sea vessel-based venue? This interpretation would support the needs of THEOS-2 End Users who are remotely deployed with no access to the IGS via terrestrial network communications. Please expand upon and clarify your motivation, intent, purpose, mission application and expectations with Paragraph 4.6.

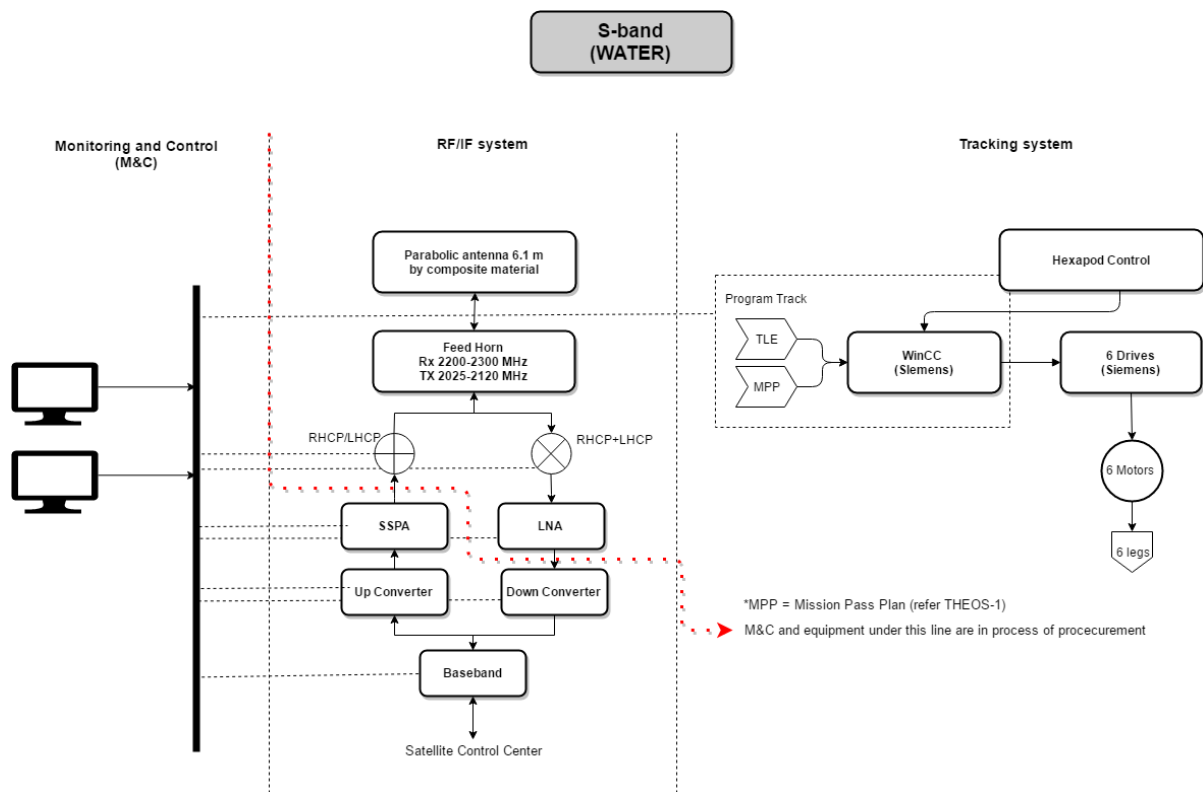
A7-10 Refer to para 4.6, “A replication of the downlink suitable for embedding as a mobile system or located on a sea vessel” means 1) mobile antenna for image downlink 2) terminals/ workstation with processing capability which can be transported on ground mobile unit and connected with mobile antenna for real time downlink and processing.

Q7-11 Please provide desired duration and expected level of on-site support (e.g., 2 people for 6 months).

A7-11 The suitable duration and number of staffs provided depend on the complexity of the delivered system and level of capacity building from the bidder itself. The bidder shall make an assessment and propose accordingly.

Q7-12 Appendix 5, Paragraph 4.3 states that “Currently GISTDA has already deployed two S-band antennas (Tx and Rx) and two X-band antennas (Rx).” After examination of Appendix 11, Paragraph 2.3.1, the only “S-band antenna (Tx and Rx)” identified is the 4.5 m S-Band Antenna (by INDRA). Is there a second S-Band transmit and receive-capable TT&C antenna system at SKP currently that is not identified in the Instructions to Bidders? (A) If no, please confirm. (B) If yes, (1) Is the second antenna currently in use? (2) Are there technical descriptions (block diagrams, interface diagrams, etc.) available and a performance table comparable to Appendix 11, Paragraph 2.3.1, Table 3-1 that could be provided to the bidders? (3) Would the second S-Band antenna system be subject to the central monitor and control (M&C) requirement in Appendix 5, Paragraph 4.3.1?

A7-12 Yes, the second S-band antenna is under the final development phase and is going to be used with THEOS-1 and is expected to be used with THEOS-2 (if S-Band frequency is used for TM/TC), the block diagram and the performance table of the SKP S-band antenna (WATER) can be provided to the bidder by GISTDA. The second S-Band antenna will be subjected to central monitor and control system provided by contractor. Simple block diagram of WATER is provided below:



- Q7-13 The two (2) X-band 13.56m antennas identified in the Instructions to Bidders both have an inherent S-band receive capability. Is the phrase “Currently GISTDA has already deployed two S-band antennas...” actually referring to the two 13.56m antennas that have an inherent S-band capability?
- A7-13 At the moment, GISTDA has four antennas comprising of two X-band antennas (13m and 13.56m dia.) and two S-band antennas (4.5m and 6m dia.). All of which are located at Ground Control and Receiving Station, SKP, Siracha.
- Q7-14 Do any of the requirements listed in Appendix 5, Paragraph 4.3.1 also apply to the current 13.56m X/S-band antenna systems discussed in Paragraph 4.3.2? (for example, equipment redundancy and redundancy switching to ensure the continuity of the signal reception, centralized control of multiple antennas, program track and auto-track, etc.) (A) If no, please confirm. (B) If yes, which requirements contained in Paragraph 4.3.1 also apply to the current 13.56m X/S-band antenna systems? (C) Also if yes, should accommodating any requirements from Paragraph 4.3.1 be included in the scope of “provide the modification for the existing X-band system” stated in Paragraph 4.3?
- A7-14 No, para 4.3.2 only required the contractor to modify both existing X-Band antenna (13m. and 13.56m one) to fulfill three requirements within Para 4.3.2 only. No, each antenna is being operated separately.
- Q7-15 The current 13.56m X/S-band antenna systems have an inherent S-band capability. (A) If those S-band capabilities were used to achieve the ability “...to switch automatically between the nominal and redundant system to ensure the continuity of the signal reception”, would that be considered a compliant solution for redundancy and continuity of operation? (B) If yes to (A) above, would adding a redundant S-Band RF/IF electronics subsystems as part of the current 13.56m X/S-band antenna system(s) modification package be considered as a compliant response for redundancy and continuity of operation?
- A7-15 No, the intention of requirement is to have a redundancy of “monitoring and control” (M&C) itself. Not an antenna.
- Q7-16 Page 113 of ITB: The required BER is 10^{-9} for image down link of the small satellite. However, it seems to be exceptionally high compared to the BER of the main satellite, 10^{-6} in page 105. Please, clarify if it is a typo.

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- A7-16 Small satellite shall have lower bitrate than the main satellite and shall not be directly compared. BER of 10^{-9} after error correction is confirmed.
- Q7-17 Instructions to Bidders Document: Annex 4 & Annex 5 Section 4.6 & Annex 10 – Mobile Ground Segment - The customer requirements for the Mobile Ground Segment capability are not clearly defined in the bid documents. Please provide a clear set of requirements for the Mobile Ground Segment in the form of a requirements specification – please ensure this addresses (at a minimum): required conops, functionality, interfaces, and performance. The specification should address mobile specific requirements such as transportability, environmental and storage.
- A7-17 Refer to para 4.6 “A replication of the downlink suitable for embedding as a mobile system or located on a sea vessel” means 1) mobile antenna for image downlink 2) terminals/ workstation with processing capability which can be transported on ground mobile unit and connected with mobile antenna for real time downlink and processing.
- Q7-18 Small Satellite – Appendix 5, Section 2.2.2 – Please clarify whether the Small Satellite should be designed to accommodate a customer-furnished AIS/ADS-B secondary payload, or whether the Small Satellite should include this secondary payload as part of the proposed solution.
- A7-18 AIS/ADS-B shall be included as a secondary payload.
- Q7-19 Please define “native GSD”.
- A7-19 The native Ground Sampling Distance (GSD) is an actual area size on per pixel at instrument (at nadir) without any polluted the data (such as interpolation or resampling).
- Q7-20 “The bidder shall provide the figure factor of the incidence of radiance levels in temporary excess of the saturation radiance level”. Does this mean measuring the spectral radiance level that will result in saturation? Otherwise please clarify.
- A7-20 It means the figure of spectral radiance which cause saturation inflicting permanent damage to the satellite’s sensors.
- Q7-21 Can you provide more information about “deletion of image shall be selectable between automatic (after downlink) or manual.”?
- A7-21 After the satellite takes images and the images have been downlinked to the specified receiving station, those images will be automatically deleted/cleared from onboard storage. So, our intention for “deletion of image shall be selectable...” is to

allow mission planning operator to select between “delete image immediately after downlink at station A” or “hold on the image that just downlink to station A and downlink it again at Station B (or C,D,...) before deleting”

Q7-22 Can you provide more information about the specifications?

“Angular rate for performing initial rate damping”

“Number of orbit for performing sun acquisition”

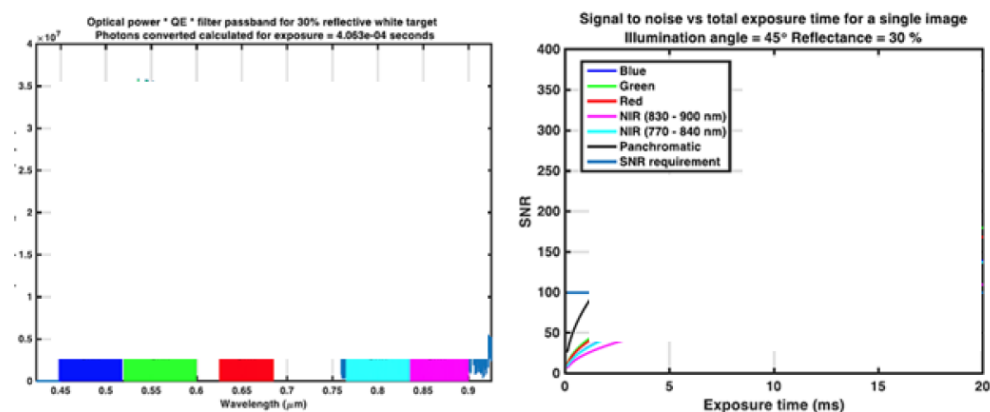
A7-22 1) Maximum angular rate of the satellite in which the satellite attitude and orbit control system is still able to perform initial rate damping and 2) Maximum number of orbit which the design of satellite is required for the sun acquisition after entering Acquisition and Safe Hold Mode, respectively.

Bidder shall provide the figure related to each specification with respect to the proposed satellite architecture and worst case scenario.

Q7-23 Please clarify the requirement that “The satellite orbits shall be significantly designed as gap filler of Thaichote-2 visibility” and the requirement for “orbit inclination 30 - 35 deg” for the Small Satellite.

A7-23 The orbit of small satellite shall be designed such that the satellite could be use in coordination with the main satellite (e.g. possibility of inter-operation for imaging). The requirement for low inclination (30-35 deg) of the small satellite is due to the fact that the small satellite will be mainly used for imaging in equatorial area.

Q7-24 Is this kind of graph answering the Spectral Radiance section?



A7-24 The information regarding to Spectral Radiance Section shall comply with the requirements as below:

Spectral Radiance

- The bidder shall provide the radiance levels for Low Radiance, Typical Radiance and Saturation Radiance. The radiance levels are apparent spectral radiance values, at instrument input and averaged over their respective spectral domain.
- The bidder shall provide the figure factor of the incidence of radiance levels in temporary excess of the saturation radiance level (such as those due to specular reflection of solar energy from high reflectivity surfaces, shall not permanently impair the ability of the mission equipment to collect imagery data).
- The bidder shall provide the figure of delay time to resume the collection of valid imagery data following the termination of an interval during which the received radiance exceeds the saturation radiance.

Q7-25 Section 2.4, "capability to simultaneously record and downlink Playback Telemetry data", what do you mean by Playback Telemetry?

A7-25 Playback Telemetry means Housekeeping Telemetry recorded and stored onboard during outside communication zone which is downlinked and processed on-ground.

Q7-26 Section 2.4, "capability to manage sequentially the priority of Telecommand", please explain the Conops of Telecommand, why is there a need for priority on board?

A7-26 This idea / matter reflects GISTDA's requirement. The Bidder may propose otherwise. GISTDA will rate/score accordingly.

Q7-27 Section 2.4, what do you mean by Telemetry format? Do you have a specific format?

A7-27 There is no specific format. The format shall be common. The phrase "Capability to reprogram the Telemetry format via ground command" is the requirement is to have back-up telemetry stored onboard which can be retrieved later in case of lost of main recorded telemetry.

Q7-28 Section 2.4, "capability to record and reproduce the data multiplexed at the mission data coding capability", please explain.

A7-28 OBC shall have a capability to record command and execute such a record command later on.

Q7-29 "All necessary sensor raw data outputs and GPS data, required in controlling the small satellite and performing post attitude processing from the ground, shall be fully transmitted in playback." What do you mean by Playback?

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- A7-29 Playback Telemetry means Housekeeping Telemetry recorded and stored onboard during outside communication zone which is downlinked and processed on-ground.
- Q7-30 “When Panchromatic and Multi-spectral data are acquired simultaneously for real time downlink” Do you mean the image is being stored and downlink simultaneously?
- A7-30 Yes, this paragraph relates to the requirement to manage properly the downlink of both PAN and MS channels during direct data transfer or real time imaging and downlink.
- Q7-31 “The satellite development including assembly, integration and test shall be located at Space Krenovation Park (SKP)” What infrastructure is/will be available at SKP for such operations? For example – clean rooms, environmental test laboratory equipped with shaker, acoustic noise chamber and thermal vacuum chamber etc.
- A7-31 AIT at SKP is under implementation and construction. The facility consists of clean rooms, laboratory, thermal chamber, shaker etc.
- Q7-32 “The bidder must support/assist GISTDA to develop and modify GISTDA current systems used in CGS for THEOS-1 operation in order to be interoperable with Thaichote-2, Small Satellite and other operation system.” Is the bidder not required to supply a separate CGS systems for operation of his proposed satellites, or is the modified existing CGS the only means for operating both of the new satellites? What is the “other operation system”?
- A7-32 Although not stated in section 4.1, The bidder has the flexibility and is encouraged to propose its own ground products (e.g. control ground software, image processing software) taken into account system functionality, performance optimization and risk mitigation aspect. However, the task of supporting/assisting GISTDA to develop and modify GISTDA current ground software products used in CGS for THEOS-1 operation in order to be interoperable with Thaichote-2, Small Satellite and other operation system is still applied.
- GISTDA’s developed systems for ground control and processing will be used as a secondary or backup system in case bidder provides its own operating systems.
- The intention for “Interoperable” is to be able to control/TT&C between Thaichote-1, Thaichote-2 and Small satellite only, there is no requirement to operate other satellites.

“Other operation systems” are the system of other satellite data sources which are involving image tasking by GISTDA. The requirement to be “interoperable” with “Other operation systems” is to be able to generate/submit the request (not TC command) for satellite imaging.

Q7-33 “Currently GISTDA has already deployed two S-band antennas (Tx and Rx) and two X-band antennas (Rx). In THEOS-2 program the bidder should provide one antenna system for TT&C additionally, and provide the modification for the existing X-band system in order to operate with Thaichote-2 and Small Satellite.”

- Provide one antenna system for TT&C additionally: does it mean one additional S / X enable to operate Th1, Th2, Small S/C and other satellites? Could be accepted a delivery of combined S/X antenna system?
- Provide modification for the existing X-band system like the demodulator shall be separated for two channels supporting dual uses with ciphering key in each channel: could you kindly indicate if the current demodulator is a shared one for the MUT and GPT users?

A7-33 Provide one antenna system for TT&C additionally: does it mean one additional S / X enable to operate Th1, Th2, Small S/C and other satellites? → For TT&C propose, one more additional S-band antenna (in case of S-band is selected for TT&C) is required.

Could be accepted a delivery of combined S/X antenna system? Yes, it’s possible to deliver an additional antenna with S/X capability. However, the bidder shall provide the modification for the existing X-band system in order to operate with Thaichote-2 and Small Satellite.

The existing system is just for civilian used. Therefore, there is no demodulator that will be shared between military and civilian.

Q7-34 “The SKP serves as a platform for linking each of satellite ground systems.”

- Could you kindly indicate the interaction, if any, between the two existing Thailand ground stations?
- Could you determine the system configuration of the SKP, as an all ground systems linkage hub?

A7-34 At the moment, there is no physical link between any existing Thailand ground stations.

Q7-35 “Satellite control station, satellite receiving station and image data processing system shall be an integrated multi-mission system.” Could you kindly refer to the interaction, if any, between the military and GISTDA Users in the frame of common infrastructure, operational aspects, and database etc.?

A7-35 Please refer to Appendix 5 of the Instructions to Bidders.

Q7-36 “The THEOS-2 shall connect and integrate GIS data of land, air and water from related organizations and data monitoring stations.” Could you kindly indicate the requested interaction, if any, between the two already operating Thailand ground stations and the future THEOS-2 dedicated Ground Segment?

A7-36 The Bidder shall study the existing web portal of the related agencies. Please also refer to Appendix 3 for further information.

Q7-37 “Mobile Ground Segment: A replication of the downlink and processing system suitable for embedding as a mobile system or located on a sea vessel.” Could you kindly define the request details of definition for the sea vessel application (HW & SW)?

A7-37 There is no specific requirement or detail definition for sea vessel. The intention of para 4.6 is just to indicate the mobility of a replication of downlink and processing system of the Mobile Ground Segment on a mobile platform or sea vessel.

Q7-38 “THEOS-2 Ground Segment Availability:

- For S/C Reliability not less than 0.65 after 7-year lifetime
- GS availability shall be better than 97 percentages, maximum downtime shall be less than 20 hours, and mean time to repair (MTTR) shall be less than 2 hours.

Kindly determine the following complementary figures:

- Is the system utilization assumed for 24 Hrs x7 Days?
- How many S and X passes per 24 Hrs the system Up & Down links should operate?
- TAT (GS equipment repair Turn Around Time) -?

A7-38 Is the system utilization assumed for 24 Hrs x7 Days? A: The Ground system is always on 24/7, but it will be fully utilized during satellite visibility and data processing. For more clarification, the availability of better than 97 percentages is applied only for “Antanas TT&C” (TOR 4.3.1).

How many S and X passes per 24 Hrs the system Up & Down links should operate?

A: Currently, S-band antenna is utilized for Thaichote-1 only (about 4 passes per 24

Hrs) and two X-band antennas (13 meters) are utilized for Thaichote-1, Landsat-8, Radarsat-2, COSMO-SkyMed about 8 passes per 24 Hrs.

TAT (GS equipment repair Turn Around Time)? A: TAT from any planned maintenance is excluded from downtime and MMTR specifications.

Q7-39 “Thaichote-2 shall be able to support dual-use operation The Military User's Terminal (MUT) shall be separated physically and shall be installable at different location with dedicated secure connection to the MPC system”

- Is the MUT different located inside GISTDA ground control station area?
- “MUT shall allow the users to connect and operate remotely via secure connection.” Could you kindly provide additional details regarding this requirement such as:
 - Should MUT use the common Ground Station infrastructure resources as S/X band Antenna and TT&C system facilities?
 - If positively: does the request of "remotely" meaning a separate secured LAN communication that will enable remote operation of the H/W as a common one to both MUT and GPT users?

A7-39 MUT shall be designed to be able to locate at the same or different location from GISTDA ground station. Functionality of MUT is just to make assessment/feasibility/submit the request to MPC. So, MUT will not share any resources beyond MPC.

Q7-40 “The bidder must support/assist GISTDA to develop and modify GISTDA image production system (SIPRO)” Could you kindly provide additional particular details regarding this requirement: is it SIPRO an existing system and the requirement scope is this system modification only or the requirement is to develop a brand new IGS system that will enable image processing of the THEOS-2 as well as Thaichote-1 and other satellites?

A7-40 SIPROs is the image processing software developed by GISTDA which is currently able to process THEOS-1 data and generate up to standard product level (Radiometric and Geometric Corrected). The scope of this system is to modify the SIPROs to be able to interoperable with Thaichote-2, Small Satellite and other operation system.

Q7-41 “... to operate 3 Earth observation satellites at minimum. The bidder shall propose the nominal routine operation structure and procedure...” Should the nominal

routine operation structure and procedure support nominally the operation of the Th1, Th2, Small S/C and other satellites simultaneously?

A7-41 Yes, it should.

Q7-42 "The document states: "Any in-space components (satellites) shall be supplied on a delivery-in-orbit basis including launch, insurance and in-orbit validation and all the related ground facilities / software processors". What is considered as "related ground facilities / software processors"?"

A7-42 These are examples of what considered as "related ground facilities": Antennas, Control Ground Segment, Image Ground Segment, including related software, etc.

Q7-43 Is the storage life, the period necessary to built and test the VHR Satellite?

A7-43 No, the storage life is the period after the satellite is declared ready to be launched and the actual launch of the satellite.

Q7-44 Is a digital simulator also necessary for the VHR Satellite?

A7-44 Bidder shall provide what is necessary for secure operation. If the digital simulator is required for telecommand validation during in-orbit operation (e.g., case where it is necessary for the ground operator to send non-routine telecommand which shall be validated with the digital simulator first), then it shall also be provided.

Q7-45 Could you please give us the detailed list of equipment of each antenna including spare parts? Are X-band antennas able to receive both polarization at the same time? Are X-band antennas equipped with auto-track? Are the antennas able to take into account TLE? Are X-band antennas collocated?

A7-45 Detailed list of equipment of each antenna is provided as attachment.

Spare Part list: provide as attachment.

Are X-band antennas able to receive both polarizations at the same time? → L3 (13m) supports dual frequency receiving. VIASAT (13:56m) supports both dual frequency and dual polarization receiving.

Are X-band antennas equipped with auto-track? → Yes

Are the antennas able to take into account TLE? → Yes

Are X-band antennas collocated? → Yes, Both antennas are located as Siracha Ground Station and give the same ground visibility circular area.

Q7-46 X-band and S band antennas: Are antennas under maintenance contract (and names of contractors)? Are antennas managed as a pool by a dedicated management system, are the antennas redundant one with the other? Is the new S-band antenna

location defined, close to GISTDA THEOS-2 Ground System? Could you please detail how are the antennas connected to the Ground segment?

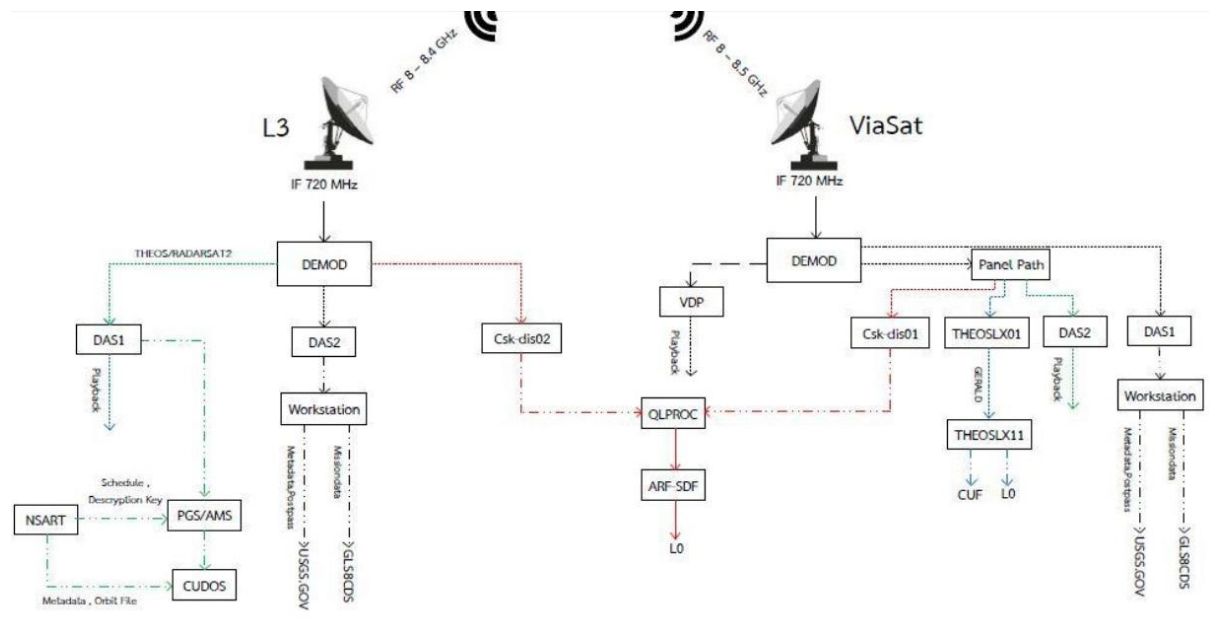
A7-46 For the existing facilities, two S-band antennas and two X-band antennas:

Are antennas under maintenance contract (and names of contractors)? → For X-band antenna: (1) L3 is maintained by GISTDA, only antenna structure inspection and major lubrication the structure is done by Precise Steel and Construction Co., Ltd., (2) Viasat antenna is under warranty until Feb 2019 by Platt Nera Co., Ltd.

Are antennas managed as a pool by a dedicated management system? → No, they used individual management system.

Are the antennas redundant one with the other? → For two S-band antennas, they are redundant to each other. For two X-band antennas, they both are utilized as nominal antennas in case of satellites conflict. Even there is no satellites conflict, both antennas will be acquired the images to ensure the success of data reception.

L3 antenna connected control and monitoring via fiber optic cable and transmitted downlink data via coaxial cable while Viasat antenna connected both via fiber optic cable.



Q7-47 (Small Satellite) Can GISTDA confirm that for Instructions to Bidders, section 2.3, Radiometric Image Quality, p110, that the PAN MTF figure of 0.2 requested is correct?

A7-47 Yes, it is correct. However, the bidder can offer the better quality of MTF. The figure of 0.2 is the minimum requirement.

8. Appendix 6: Requirements for IT Infrastructure Design

Q8-1 The chart and diagram on page 130 shows multiple communication paths / Wide Area Networks (WAN) connecting to the Satellite Center - Sri Racha. Do you have a preferred primary and backup path for the Civil Users, i.e. GIN as primary and an internet connection as backup? Similarly, do you have a preferred primary and backup path for the military users, i.e. a dedicated MPLS link (or similar) and another method / WAN as backup?

A8-1 For the Civil Users, the national broadband is a preferred primary, and an internet connection as backup. For Military Users, the dedicated point-to-point fiber optic is a preferred primary, and a MPLS as backup.

Q8-2 IT Infrastructure Design – Appendix 6 requests vendors propose an infrastructure design to connect the facilities identified. Are we correct in assuming that the proposal should describe the infrastructure required but that the bid not include any costs for its implementation?

A8-2 Bidding price does not cover the cost of IT Infrastructure implementation.

9. Appendix 7: Requirements for Capacity Building, Technology Transfer and Training

Q9-1 Are the numbers of GISTDA co-development staff identified in Appendix 7 Tables 1, 2, 3 negotiable? Do you plan for these numbers of personnel to be residing at Contractor's facility over the duration of the program?

A9-1 The numbers of staff identified in Appendix 7 Tables 1, 2 and 3 are the minimum number. Living and accommodation expenses are covered by other sources of fund, not part of this project. The staffs who work for main satellite program will be residing at Contractor's facilities. Others will work at SKP, and attending the specific short training courses at Contractor's facilities.

Q9-2 Instructions to Bidders Document: Appendix 7 Section 1.1.2 & Contract Document – Section 6.1 e(i) – Assembly, Integration and Test (AIT) Facilities – Please confirm whether the supplier is expected to deliver a Plan for the Implementation of an AI&T facility, or whether the supplier is expected to provide a Plan and the Equipment to build an AI& T facility. Please confirm that GISTDA will provide all lands, buildings and associated facilities infrastructure (i.e., power, communications, plumbing, furniture, roadworks, etc) for the AIT facility.

A9-2 The numbers of staff identified in Appendix 7 Tables 1, 2 and 3 are the minimum number. Living and accommodation expenses are covered by other sources of fund,

not part of this project. The staffs who work for main satellite program will be residing at Contractor's facilities. Others will work at SKP, and attending the specific short training courses at Contractor's facilities.

Q9-3 Bidder shall provide a management plan including test equipment needed for Assembly Integration & Test (excluding test facilities such as cleanroom, shaker, thermal vacuum chamber, etc.). Can you confirm test facilities such as cleanroom, shaker, thermal vacuum chamber are excluded (typo)?

A9-3 Bidder shall provide a management plan including test equipment needed for Assembly Integration & Test (list of equipment, specifications and price list). GISTDA will procure this Equipment by other source of fund, not part of this project. However, within a certain budget, GISTDA plan to have a 100kg satellite-level AIT cleanroom facilities, including Thermal VAC and shaker only. For other environment tests such as mass property and others, the bidder shall provide management plan for testing at other places.

Q9-4 Could GISTDA please provide the following additional information on this requirement including the following:

- Please could you confirm the number of attendees for the fundamental courses relates directly to the number of trainees in sections 1.1-1.3?
- Please could GISTDA give an indication of expected trainee competency levels

A9-4 1) All staffs in sections 1.1-1.3 will consist of GISTDA staffs, new staffs, and staffs from alliance partners, therefore, they all have to attend the fundamental courses for having the same understanding. The fundamental courses (lecture class and computer-based simulation class) will be taken place at SKP facilities.

2) GISTDA expects all trainees have capability of designing and hand-on expertise on hardware/software implementation, in each system/subsystem development.

10. Appendix 8: Requirements for Bid Program

Q10-1 In regards to the management plan, it is stated that it should exclude test facilities such as cleanroom, shaker, thermal vacuum chamber, etc. Should we assume that these facilities are customer furnished equipment and that they will be in place at SKP for the Small Satellite AI&T?

A10-1 Yes. Test facilities and test equipment namely (provide list)... will be provided as customer furnished equipment at SKP.

11. Appendix 9: Requirements for Business Development

Q11-1 RFP states in Appendix 9 "...a minimum return to GISTDA must be committed to based on the assumption that the satellite will operate within specified standards. Failure to operate between these standards would result in pro-rated expected return". Does this statement refer to successful satellite operations, with warranty payback for degraded performance over 7 years? Or does this statement suggest a take-or-pay arrangement for excess capacity? Please clarify your intent and meaning.

A11-1 Yes, it refers to successful satellite operations, with warranty payback for degraded performance over 7 years.

12. Appendix 10: Evaluation & Criteria

Q12-1 Evaluation/scoring matrix doesn't include Appendices 1, 2, 6, 8 or 9. Please describe how these appendices will be scored.

A12-1 Appendices 1, 2, 6, 8, and 9 correspond to Background, Prelude to Insight of Bid Requirement Context, Requirements for IT Infrastructure Design, Requirements for Bid Program and Requirements for Business Development correspondingly. The first two appendices will not be scored. The latter two appendices are addressed intrinsically in the scoring. Nonetheless all the appendices above, except Appendix 1, shall be responded as part of the Technical Proposal.

Q12-2 In regards to the knowledge transfer scoring criteria, please specify the weighting associated with scholarships for Master's/Ph.d degrees

A12-2 The scoring criteria of Knowledge Transfer will focus on hands-on and practical work of technology transfer. However, it is open for the scholarships offering of Master's/Ph.d degrees.

Q12-3 Page 151 and 152 of "Instruction to Bidders" indicates Scoring points for Main Satellite is 17 and for Small Satellite is 20. Please confirm this is correct.

A12-3 Yes, it is correct. The small satellite has more contribution on Knowledge Transfer and therefore more weight. The score of the main satellite depends mainly on its architecture and performance.

Q12-4 Instructions to Bidders Document Section E-25 and Appendix 10: Evaluation Criteria – Given that a total Technical Score of 80% or over is required for a bid to be considered or "passed", please provide a more detailed breakdown of the points distribution for the evaluation criteria to allow bidders to propose maximally

compliant technical solutions and achieve scores of over 80%. This is specifically important for the following items:

a) Evaluation and Scoring Integrated Solutions (Appendix 3)

i. 3.2 – Methodology and Deliverables (12 points)

b) Evaluation and Scoring for Appendix 4, 5, and 7

i. 3.1 – Main Satellite – Technology (9 points)

ii. 3.2 – Small Satellite – Knowledge Transfer (11 points)

iii. 3.3 – Ground Segment – Knowledge Transfer (5 points)

A12-4 The committee reserves the right to answer this question.

Q12-5 Could GISTDA please clarify the evaluation matrix at Appendix 10 – we are unable to see a line item for Appendix 9 International Business Development.

A12-5 The proposed Business Development plan will be taken into account as a part of Bid Conformance.

13. Appendix 11: Reference Information

Q13-1 Please provide a summary of key/relevant points from the National Strategic Action Plan and NESDB Plan in English language.

A13-1 The summary of key points from the NESDB plan is provided in the attachment (source: www.nesdb.or.th) (no English translation provided). The (draft) 20-year National Strategic Action Plan (2017-2036) and the 12th National Economic and Social Development Plan are also provided as attachment.

Q13-2 With respect to the referenced “Coastal RADARs”, can an ICD be provided that describes the format and content of data received by the system from the RADARs as well as defining the physical and protocol interfaces?

A13-2 Please see the attachment.

Q13-3 Can an English version of the graphic on page 167 be provided?

A13-3 Yes. Please see the attachment.

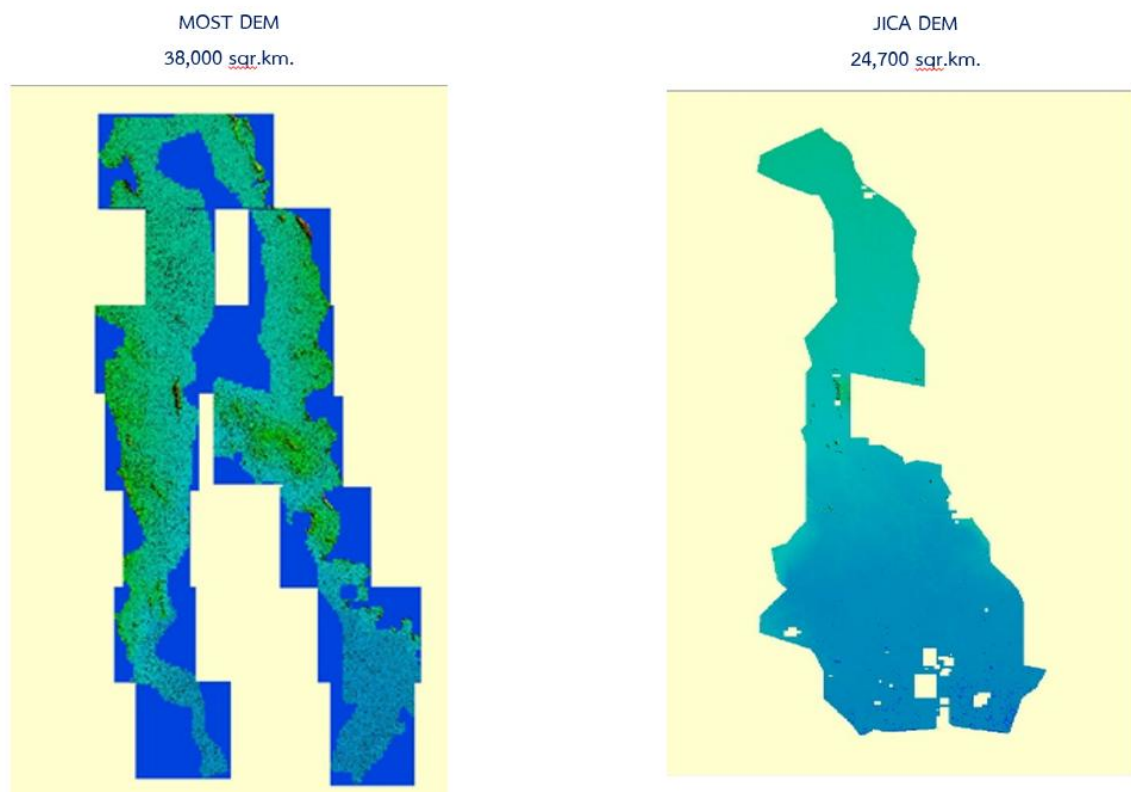
Q13-4 Will the Government of Thailand provide LIDAR data to the awardee? If so, what will the country-wide coverage and resolution be?

A13-4 The LiDAR data and associated data will be provided to the awardee with regards to the development of the applications proposed or needed. Besides, the mentioned

data refer to the data that in possession of GISTDA or available to be disseminated by GISTDA.

For the coverage and specification of existing LiDAR data, there were two major LiDAR projects during 2011-2012 and can be stated as followings:

- 1) The first one is JICA LiDAR which final DTM's resolution (grid size) is 2m and vertical accuracy is 30 cm. The coverage is about 25,000 sqr.km in Inner Chaophraya Basin.
- 2) While for MOST LiDAR, the final resolution (grid size) is 1 m and vertical accuracy is 20 cm. The coverage of MOST LiDAR can be said that for raw data, approximately covers 60,000 sqr.km. However, for final DTM, it covers only 35,000 sqr.km in the outer part of Chaophraya Basin as illustrated in the image.



Q13-5 Please provide English language copies of the following documents:

- a) 20-year National Strategic Action Plan (2017-2036)
- b) 12th National Economic and Social Development Plan

A13-5 Please see answer A 13-1.

Q13-6 Can you provide documentation (such as specifications, ICD, user's manual) or a compliance matrix with ITT requirements of each of the existing GISTDA

systems/products (VOSSCA, EMERALD, WATER, OPTEMIS, SIPRO, GASS...) you require we reuse.

A13-6 Please see the attachment.

Q13-7 (Page 163) Are these Stand-Alone Applications operational? Where are these applications located? How are the satellite image data delivered to these applications? How are the value-added data disseminated to the end-users?

A13-7 They are all operational and are all web-based. The satellite image data is mostly delivered via internet link between ground stations.

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