

INVITATION TO BID

**Title of Service: Supply and Installation of Solar Panels at Ministry
of Environment**

Name of Country: Cambodia

Process No: 7492



United Nations Development Programme

June, 2018

Section 1. Letter of Invitation

Cambodia
June 28, 2018

Invitation to Bid: Supply and Installation of Solar Panels at Ministry of Environment located at Building No. 48, Samdach Preah Sihanouk Blvd, Phnom Penh Cambodia

Dear Mr./Ms.:

The United Nations Development Programme (UNDP) hereby invites you to submit a Bid to this Invitation to Bid (ITB) for the above-referenced subject.

This ITB includes the following documents:

- Section 1 – This Letter of Invitation
- Section 2 – Instructions to Bidders (including Data Sheet)
- Section 3 – Schedule of Requirements and Technical Specifications
- Section 4 – Bid Submission Form
- Section 5 – Documents Establishing the Eligibility and Qualifications of the Bidder
- Section 6 – Technical Bid Form
- Section 7 – Price Schedule Form
- Section 8 – Form for Bid Security N/A
- Section 9 – Form for Performance Security N/A
- Section 10 – Form for Advanced Payment Guarantee
- Section 11 – Contract to be Signed, including General Terms and Conditions

Your offer, comprising of a Technical Bid and Price Schedule, together in a sealed envelope, should be submitted in accordance with Section 2 and to the following address **no later than 12 July 2018 by 12:00 p.m., local time. Late submission shall be rejected.**

You are kindly requested to submit an acknowledgment letter to UNDP via below email address:
procurement.kh@undp.org or sereyvattana.chan@undp.org


The letter should be received by UNDP no later than **06 July 2018 at 5:00 pm, Cambodia time**. The same letter should advise whether your company intends to submit a Bid. If that is not the case, UNDP would appreciate your indicating the reason, for our records.

If you have received this ITB through a direct invitation by UNDP, transferring this invitation to another firm requires notifying UNDP accordingly.

Should you require any clarification, kindly communicate with the contact person identified in the attached Data Sheet as the focal point for queries on this ITB.

UNDP looks forward to receiving your Bid and thanks you in advance for your interest in UNDP procurement opportunities.

Yours sincerely,



Kolap Hul (Ms.)
Operation Manager

Section 2: Instruction to Bidders¹

Definitions

- a) *“Bid”* refers to the Bidder’s response to the Invitation to Bid, including the Bid Submission Form, Technical Bid and Price Schedule and all other documentation attached thereto as required by the ITB.
- b) *“Bidder”* refers to any legal entity that may submit, or has submitted, a Bid for the supply of goods and provision of related services requested by UNDP.
- c) *“Contract”* refers to the legal instrument that will be signed by and between the UNDP and the successful Bidder, all the attached documents thereto, including the General Terms and Conditions (GTC) and the Appendices.
- d) *“Country”* refers to the country indicated in the Data Sheet.
- e) *“Data Sheet”* refers to such part of the Instructions to Bidders used to reflect conditions of the tendering process that are specific for the requirements of the ITB.
- f) *“Day”* refers to calendar day.
- g) *“Goods”* refer to any tangible product, commodity, article, material, wares, equipment, assets or merchandise that UNDP requires under this ITB.
- h) *“Government”* refers to the Government of the country where the goods and related services provided/rendered specified under the Contract will be delivered or undertaken.
- i) *“Instructions to Bidders”* refers to the complete set of documents which provides Bidders with all information needed and procedures to be followed in the course of preparing their Bid
- j) *“ITB”* refers to the Invitation to Bid consisting of instructions and references prepared by UNDP for purposes of selecting the best supplier or service provider to fulfil the requirement indicated in the Schedule of Requirements and Technical Specifications.
- k) *“LOI”* (Section 1 of the ITB) refers to the Letter of Invitation sent by UNDP to Bidders.
- l) *“Material Deviation”* refers to any contents or characteristics of the bid that is significantly different from an essential aspect or requirement of the ITB, and (i) substantially alters the scope and quality of the requirements; (ii) limits the rights of UNDP and/or the obligations of the offeror; and (iii) adversely impacts the fairness and principles of the procurement process, such as those that compromise the competitive position of other offerors.

¹ Note: this Section 2 - Instructions to Bidders shall not be modified in any way. Any necessary changes to address specific country and project information shall be introduced only through the Data Sheet.

- m) *“Schedule of Requirements and Technical Specifications”* refers to the document included in this ITB as Section 3 which lists the goods required by UNDP, their specifications, the related services, activities, tasks to be performed, and other information pertinent to UNDP’s receipt and acceptance of the goods.
- n) *“Services”* refers to the entire scope of tasks related or ancillary to the completion or delivery of the goods required by UNDP under the ITB.
- o) *“Supplemental Information to the ITB”* refers to a written communication issued by UNDP to prospective Bidders containing clarifications, responses to queries received from prospective Bidders, or changes to be made in the ITB, at any time after the release of the ITB but before the deadline for the submission of Bid.

A. GENERAL

1. UNDP hereby solicits Bids as a response to this Invitation to Bid (ITB). Bidders must strictly adhere to all the requirements of this ITB. No changes, substitutions or other alterations to the rules and provisions stipulated in this ITB may be made or assumed unless it is instructed or approved in writing by UNDP in the form of Supplemental Information to the ITB.
2. Submission of a Bid shall be deemed as an acknowledgement by the Bidder that all obligations stipulated by this ITB will be met and, unless specified otherwise, the Bidder has read, understood and agreed to all the instructions in this ITB.
3. Any Bid submitted will be regarded as an offer by the Bidder and does not constitute or imply the acceptance of any Bid by UNDP. UNDP is under no obligation to award a contract to any Bidder as a result of this ITB.
4. UNDP implements a policy of zero tolerance on proscribed practices, including fraud, corruption, collusion, unethical practices, and obstruction. UNDP is committed to preventing, identifying and addressing all acts of fraud and corrupt practices against UNDP as well as third parties involved in UNDP activities. (See http://www.undp.org/about/transparencydocs/UNDP_Anti_Fraud_Policy_English_FINAL_june_2011.pdf and http://www.undp.org/content/undp/en/home/operations/procurement/procurement_protest/ for full description of the policies)
5. In responding to this ITB, UNDP requires all Bidders to conduct themselves in a professional, objective and impartial manner, and they must at all times hold UNDP’s interests paramount. Bidders must strictly avoid conflicts with other assignments or their own interests, and act without consideration for future work. All Bidders found to have a conflict of interest shall be disqualified. Without limitation on the generality of the above, Bidders, and any of their affiliates, shall be considered to have a conflict of interest with one or more parties in this solicitation process, if they:

5.1 Are, or have been associated in the past, with a firm or any of its affiliates which have been engaged UNDP to provide services for the preparation of the design, Schedule of Requirements and Technical Specifications, cost analysis/estimation, and other documents to be used for the procurement of the goods and related services in this selection process;

5.2 Were involved in the preparation and/or design of the programme/project related to the goods and related services requested under this ITB; or

5.3 Are found to be in conflict for any other reason, as may be established by, or at the discretion of, UNDP.

In the event of any uncertainty in the interpretation of what is potentially a conflict of interest, Bidders must disclose the condition to UNDP and seek UNDP's confirmation on whether or not such conflict exists.

6. Similarly, the following must be disclosed in the Bid:

6.1 Bidders who are owners, part-owners, officers, directors, controlling shareholders, or key personnel who are family of UNDP staff involved in the procurement functions and/or the Government of the country or any Implementing Partner receiving the goods and related services under this ITB; and

6.4 Others that could potentially lead to actual or perceived conflict of interest, collusion or unfair competition practices.

Failure of such disclosure may result in the rejection of the Bid.

7. The eligibility of Bidders that are wholly or partly owned by the Government shall be subject to UNDP's further evaluation and review of various factors such as being registered as an independent entity, the extent of Government ownership/share, receipt of subsidies, mandate, access to information in relation to this ITB, and others that may lead to undue advantage against other Bidders, and the eventual rejection of the Bid.

8. All Bidders must adhere to the UNDP Supplier Code of Conduct, which may be found at this link: <http://web.ng.undp.org/procurement/undp-supplier-code-of-conduct.pdf>

B. CONTENTS OF BID

9. Sections of Bid

Bidders are required to complete, sign and submit the following documents:

9.1 Bid Submission Cover Letter Form (see ITB Section 4);

9.2 Documents Establishing the Eligibility and Qualifications of the Bidder (see ITB Section 5);

9.3 Technical Bid (see prescribed form in ITB Section 6);

9.4 Price Schedule (see prescribed form in ITB Section 7);

9.5 Bid Security, if applicable (if required and as stated in the DS nos. 9-11, see prescribed Form in ITB Section 8);

9.6 Any attachments and/or appendices to the Bid (including all those specified under the **Data Sheet**)

10. Clarification of Bid

- 10.1 Bidders may request clarification of any of the ITB documents no later than the number of days indicated in the **Data Sheet** (DS no. 16) prior to the Bid submission date. Any request for clarification must be sent in writing via courier or through electronic means to the UNDP address indicated in the **Data Sheet** (DS no. 17). UNDP will respond in writing, transmitted by electronic means and will transmit copies of the response (including an explanation of the query but without identifying the source of inquiry) to all Bidders who have provided confirmation of their intention to submit a Bid.
- 10.2 UNDP shall endeavor to provide such responses to clarifications in an expeditious manner, but any delay in such response shall not cause an obligation on the part of UNDP to extend the submission date of the Bid, unless UNDP deems that such an extension is justified and necessary.

11. Amendment of Bid

- 11.1 At any time prior to the deadline for submission of Bid, UNDP may for any reason, such as in response to a clarification requested by a Bidder, modify the ITB in the form of a Supplemental Information to the ITB. All prospective Bidders will be notified in writing of all changes/amendments and additional instructions through Supplemental Information to the ITB and through the method specified in the **Data Sheet** (DS No. 18).
- 11.2 In order to afford prospective Bidders reasonable time to consider the amendments in preparing their Bid, UNDP may, at its discretion, extend the deadline for submission of Bid, if the nature of the amendment to the ITB justifies such an extension.

C. PREPARATION OF BID

12. Cost

The Bidder shall bear any and all costs related to the preparation and/or submission of the Bid, regardless of whether its Bid was selected or not. UNDP shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the procurement process.

13. Language

The Bid, as well as any and all related correspondence exchanged by the Bidder and UNDP, shall be written in the language (s) specified in the **Data Sheet** (DS No. 4). Any printed literature furnished by the Bidder written in a language other than the language indicated in the **Data Sheet**, must be accompanied by a translation in the preferred language indicated in the **Data Sheet**. For purposes of interpretation of the Bid, and in the event of discrepancy or inconsistency in meaning, the version translated into the preferred language shall govern. Upon conclusion of a contract, the language of the contract shall govern the relationship between the contractor and UNDP.

14. Bid Submission Form

The Bidder shall submit the Bid Submission Form using the form provided in Section 4 of this ITB.

15. Technical Bid Format and Content

Unless otherwise stated in the **Data Sheet** (DS no. 28), the Bidder shall structure the Technical Bid as follows:

- 15.1 Expertise of Firm/Organization – this section should provide details regarding management structure of the organization, organizational capability/resources, and experience of organization/firm, the list of projects/contracts (both completed and on-going, both domestic and international) which are related or similar in nature to the requirements of the ITB, manufacturing capacity of plant if Bidder is a manufacturer, authorization from the manufacturer of the goods if Bidder is not a manufacturer, and proof of financial stability and adequacy of resources to complete the delivery of goods and provision of related services required by the ITB (see ITB Clause 18 and DS No. 26 for further details). The same shall apply to any other entity participating in the ITB as a Joint Venture or Consortium.
- 15.2 Technical Specifications and Implementation Plan – this section should demonstrate the Bidder's response to the Schedule of Requirements and Technical Specifications by identifying the specific components proposed; how each of the requirements shall be met point by point; providing a detailed specification and description of the goods required, plans and drawings where needed; the essential performance characteristics, identifying the works/portions of the work that will be subcontracted; a list of the major subcontractors, and demonstrating how the bid meets or exceeds the requirements, while ensuring appropriateness of the bid to the local conditions and the rest of the project operating environment during the entire life of the goods provided. Details of technical bid must be laid out and supported by an Implementation Timetable, including Transportation and Delivery Schedule where needed, that is within the duration of the contract as specified in the **Data Sheet** (DS nos. 29 and 30).

Bidders must be fully aware that the goods and related services that UNDP require may be transferred, immediately or eventually, by UNDP to the Government partners, or to an entity nominated by the latter, in accordance with UNDP's policies and procedures. All bidders are therefore required to submit the following in their bids:

- a) A statement of whether any import or export licences are required in respect of the goods to be purchased or services to be rendered, including any restrictions in the country of origin, use or dual use nature of the goods or services, including any disposition to end users;
- b) Confirmation that the Bidder has obtained license of this nature in the past, and have an expectation of obtaining all the necessary licenses, should their bid be rendered the most responsive; and
- c) Complete documentation, information and declaration of any goods classified or may be classified as "Dangerous Goods".

- 15.3 Management Structure and Key Personnel – This section should include the comprehensive curriculum vitae (CVs) of key personnel that will be assigned to support the implementation of the technical bid, clearly defining their roles and responsibilities. CVs should establish competence and demonstrate qualifications in areas relevant to the requirements of this ITB.

In complying with this section, the Bidder assures and confirms to UNDP that the personnel being nominated are available to fulfil the demands of the Contract during its stated full term. If any of the key personnel later becomes unavailable, except for unavoidable reasons such as death or medical incapacity, among other possibilities, UNDP reserves the right to render the Bid non-responsive. Any deliberate substitution of personnel arising from unavoidable reasons, including delay in the implementation of the project of programme through no fault of the Bidder, shall be made only with UNDP's acceptance of the justification for substitution, and UNDP's approval of the qualification of the replacement who shall be either of equal or superior credentials as the one being replaced.

- 15.4 Where the **Data Sheet** requires the submission of the Bid Security, the Bid Security shall be included along with the Technical Bid. The Bid Security may be forfeited by UNDP, and reject the Bid, in the event of any or any combination of the following conditions:
- a) If the Bidder withdraws its offer during the period of the Bid Validity specified in the **Data Sheet** (DS no. 11), or;
 - b) If the Bid Security amount is found to be less than what is required by UNDP as indicated in the **Data Sheet** (DS no. 9), or;
 - c) In the case the successful Bidder fails:
 - i. to sign the Contract after UNDP has awarded it;
 - ii. to comply with UNDP's variation of requirement, as per ITB Clause 35; or
 - iii. to furnish Performance Security, insurances, or other documents that UNDP may require as a condition to rendering effective the contract that may be awarded to the Bidder.

16. Price Schedule

The Price Schedule shall be prepared using the attached standard form (Section 7). It shall list all major cost components associated with the goods and related services, and the detailed breakdown of such costs. All goods and services described in the Technical Bid must be priced separately on a one-to-one correspondence. Any output and activities described in the Technical Bid but not priced in the Price Schedule, shall be assumed to be included in the prices of the items or activities, as well as in the final total price of the bid.

17. Currencies

All prices shall be quoted in the currency indicated in the **Data Sheet** (DS no. 15). However, where Bids are quoted in different currencies, for the purposes of comparison of all Bid:

- 17.1 UNDP will convert the currency quoted in the Bid into the UNDP preferred currency, in accordance with the prevailing UN operational rate of exchange on the last day of submission

- of Bid; and
- 17.2 In the event that the Bid found to be the most responsive to the ITB requirement is quoted in another currency different from the preferred currency as per **Data Sheet** (DS no. 15), then UNDP shall reserve the right to award the contract in the currency of UNDP's preference, using the conversion method specified above.

18. Documents Establishing the Eligibility and Qualifications of the Bidder

- 18.1 The Bidder shall furnish documentary evidence of its status as an eligible and qualified vendor, using the forms provided under Section 5, Bidder Information Forms. In order to award a contract to a Bidder, its qualifications must be documented to UNDP's satisfactions. These include, but are not limited to the following:
- a) That, in the case of a Bidder offering to supply goods under the Contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods' manufacturer or producer to supply the goods in the country of final destination;
 - b) That the Bidder has the financial, technical, and production capability necessary to perform the Contract; and
 - c) That, to the best of the Bidder's knowledge, it is not included in the UN 1267 List or the UN Ineligibility List, nor in any and all of UNDP's list of suspended and removed vendors.
- 18.2 Bids submitted by two (2) or more Bidders shall all be rejected by UNDP if they are found to have any of the following:
- a) they have at least one controlling partner, director or shareholder in common; or
 - b) any one of them receive or have received any direct or indirect subsidy from the other/s; or
 - c) they have the same legal representative for purposes of this ITB; or
 - d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about, or influence on the Bid of, another Bidder regarding this ITB process;
 - e) they are subcontractors to each other's bid, or a subcontractor to one bid also submits another Bid under its name as lead Bidder; or
 - f) an expert proposed to be in the bid of one Bidder participates in more than one Bid received for this ITB process. This condition does not apply to subcontractors being included in more than one Bid.

19. Joint Venture, Consortium or Association

If the Bidder is a group of legal entities that will form or have formed a joint venture, consortium or association at the time of the submission of the Bid, they shall confirm in their Bid that : (i) they have designated one party to act as a lead entity, duly vested with authority to legally bind the members of the joint venture jointly and severally, and this shall be duly evidenced by a duly notarized Agreement among the legal entities, which shall be submitted along with the Bid; and (ii) if they are awarded the contract, the contract shall be entered into, by and between UNDP and the designated lead entity, who shall be acting for and on behalf of all entities that comprise the joint venture.

After the bid has been submitted to UNDP, the lead entity identified to represent the joint venture shall not be altered without the prior written consent of UNDP. Furthermore, neither the lead entity nor the member entities of the joint venture can:

- a) Submit another Bid, either in its own capacity; nor
- b) As a lead entity or a member entity for another joint venture submitting another Bid.

The description of the organization of the joint venture/consortium/association must clearly define the expected role of each of the entity in the joint venture in delivering the requirements of the ITB, both in the bid and in the Joint Venture Agreement. All entities that comprise the joint venture shall be subject to the eligibility and qualification assessment by UNDP.

Where a joint venture is presenting its track record and experience in a similar undertaking as those required in the ITB, it should present such information in the following manner:

- a) Those that were undertaken together by the joint venture; and
- b) Those that were undertaken by the individual entities of the joint venture expected to be involved in the performance of the services defined in the ITB.

Previous contracts completed by individual experts working privately but who are permanently or were temporarily associated with any of the member firms cannot be claimed as the experience of the joint venture or those of its members, but should only be claimed by the individual experts themselves in their presentation of their individual credentials.

If the Bid of a joint venture is determined by UNDP as the most responsive Bid that offers the best value for money, UNDP shall award the contract to the joint venture, in the name of its designated lead entity, who shall sign the contract for and on behalf of all the member entities.

20. Alternative Bid

Unless otherwise specified in the **Data Sheet** (DS nos. 5 and 6), alternative bid shall not be considered. Where the conditions for its acceptance are met, or justifications are clearly established, UNDP reserves the right to award a contract based on an alternative bid.

21. Validity Period

21.1 Bid shall remain valid for the period specified in the **Data Sheet** (DS no. 8), commencing on the submission deadline date also indicated in the **Data Sheet** (DS no. 21). A Bid valid for a shorter period shall be immediately rejected by UNDP and rendered non-responsive.

21.2 In exceptional circumstances, prior to the expiration of the Bid validity period, UNDP may request Bidders to extend the period of validity of their Bid. The request and the responses shall be made in writing, and shall be considered integral to the Bid.

22. Bidder's Conference

When appropriate, a Bidder's conference will be conducted at the date, time and location specified

in the **Data Sheet** (DS no. 7). All Bidders are encouraged to attend. Non-attendance, however, shall not result in disqualification of an interested Bidder. Minutes of the Bidder's conference will be either posted on the UNDP website, or disseminated to the individual firms who have registered or expressed interest with the contract, whether or not they attended the conference. No verbal statement made during the conference shall modify the terms and conditions of the ITB unless such statement is specifically written in the Minutes of the Conference, or issued/posted as an amendment in the form of a Supplemental Information to the ITB.

D. SUBMISSION AND OPENING OF BID

23. Submission

23.1 The Technical Bid and the Price Schedule **must be submitted together and sealed together in one and the same envelope**, delivered either personally, by courier, or by electronic method of transmission. If submission will not be done by electronic means, the Technical Bid and Price Schedule must be sealed together in an envelope whose external side must :

- a) Bear the name of the Bidder;
- b) Be addressed to UNDP as specified in the **Data Sheet** (DS no.20); and
- c) Bear a warning not to open before the time and date for Bid opening as specified in the **Data Sheet** (DS no. 24).

If the envelope is not sealed nor labeled as required, the Bidder shall assume the responsibility for the misplacement or premature opening of Bid due to improper sealing and labeling by the Bidder.

23.2 Bidders must submit their Bid in the manner specified in the **Data Sheet** (DS nos. 22 and 23). When the Bid is expected to be in transit for more than 24 hours, the Bidder must ensure that sufficient lead time has been provided in order to comply with UNDP's deadline for submission. UNDP shall indicate for its record that the official date and time of receiving the Bid is the actual date and time when the said Bid has physically arrived at the UNDP premises indicated in the **Data Sheet** (DS no. 20).

23.3 Bidders submitting Bid by mail or by hand shall enclose the original and each copy of the Bid, in separate sealed envelopes, duly marking each of the envelopes as "Original Bid" and the others as "Copy of Bid". The two envelopes, consisting of original and copies, shall then be sealed in an outer envelope. The number of copies required shall be as specified in the **Data Sheet** (DS no. 19). In the event of any discrepancy between the contents of the "Original Bid" and the "Copy of Bid", the contents of the original shall govern. The original version of the Bid shall be signed or initialed by the Bidder or person(s) duly authorized to commit the Bidder on every page. The authorization shall be communicated through a document evidencing such authorization issued by the highest official of the firm, or a Power of Attorney, accompanying the Bid.

23.4 Bidders must be aware that the mere act of submission of a Bid, in and of itself, implies that the Bidder accepts the General Contract Terms and Conditions of UNDP as attached hereto

as Section 11.

24. Deadline for Submission of Bid and Late Bids

Bid must be received by UNDP at the address and no later than the date and time specified in the **Data Sheet** (DS no. 20 and 21).

UNDP shall not consider any Bid that arrives after the deadline for submission of Bid. Any Bid received by UNDP after the deadline for submission of Bid shall be declared late, rejected, and returned unopened to the Bidder.

25. Withdrawal, Substitution, and Modification of Bid

- 25.1 Bidders are expected to have sole responsibility for taking steps to carefully examine in detail the full consistency of its Bid to the requirements of the ITB, keeping in mind that material deficiencies in providing information requested by UNDP, or lack clarity in the description of goods and related services to be provided, may result in the rejection of the Bid. The Bidder shall assume any responsibility regarding erroneous interpretations or conclusions made by the Bidder in the course of understanding the ITB out of the set of information furnished by UNDP.
- 25.2 A Bidder may withdraw, substitute or modify its Bid after it has been submitted by sending a written notice in accordance with ITB Clause 23, duly signed by an authorized representative, and shall include a copy of the authorization (or a Power of Attorney). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be received by UNDP prior to the deadline for submission and submitted in accordance with ITB Clause 23 (except that withdrawal notices do not require copies). The respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," or "MODIFICATION".
- 25.3 Bid requested to be withdrawn shall be returned unopened to the Bidders.
- 25.4 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bid and the expiration of the period of Bid validity specified by the Bidder on the Bid Submission Form or any extension thereof.

26. Bid Opening

UNDP will open the Bid in the presence of an ad-hoc committee formed by UNDP of at least two (2) members. If electronic submission is permitted, any specific electronic Bid opening procedures shall be as specified in the **Data Sheet** (DS no. 23).

The Bidders' names, modifications, withdrawals, the condition of the envelope labels/seals, the number of folders/files and all other such other details as UNDP may consider appropriate, will be announced at the opening. No Bid shall be rejected at the opening stage, except for late submission, for which the Bid shall be returned unopened to the Bidder.

27. Confidentiality

Information relating to the examination, evaluation, and comparison of Bid, and the recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process, even after publication of the contract award.

Any effort by a Bidder to influence UNDP in the examination, evaluation and comparison of the Bid or contract award decisions may, at UNDP's decision, result in the rejection of its Bid.

In the event that a Bidder is unsuccessful, the Bidder may seek a meeting with UNDP for a debriefing. The purpose of the debriefing is discussing the strengths and weaknesses of the Bidder's submission, in order to assist the Bidder in improving the bid presented to UNDP. The content of other bid and how they compare to the Bidder's submission shall not be discussed.

E. EVALUATION OF BID

28. Preliminary Examination of Bid

UNDP shall examine the Bid to determine whether they are complete with respect to minimum documentary requirements, whether the documents have been properly signed, whether or not the Bidder is in the UN Security Council 1267/1989 Committee's list of terrorists and terrorist financiers, and in UNDP's list of suspended and removed vendors, and whether the Bid are generally in order, among other indicators that may be used at this stage. UNDP may reject any Bid at this stage.

29. Evaluation of Bid

29.1 UNDP shall examine the Bid to confirm that all terms and conditions under the UNDP General Terms and Conditions and Special Conditions have been accepted by the Bidder without any deviation or reservation.

29.2 The evaluation team shall review and evaluate the Bids on the basis of their responsiveness to the Schedule of Requirements and Technical Specifications and other documentation provided, applying the procedure indicated in the **Data Sheet** (DS No. 25). Absolutely no changes may be made by UNDP in the criteria after all Bids have been received.

29.1 UNDP reserves the right to undertake a post-qualification exercise, aimed at determining, to its satisfaction the validity of the information provided by the Bidder. Such post-qualification shall be fully documented and, among those that may be listed in the **Data Sheet** (DS No.33), may include, but need not be limited to, all or any combination of the following :

- a) Verification of accuracy, correctness and authenticity of the information provided by the bidder on the legal, technical and financial documents submitted;
- b) Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team;
- c) Inquiry and reference checking with Government entities with jurisdiction on the bidder, or any other entity that may have done business with the bidder;
- d) Inquiry and reference checking with other previous clients on the quality of performance

- on on-going or previous contracts completed;
- e) Physical inspection of the bidder's plant, factory, branches or other places where business transpires, with or without notice to the bidder;
- f) Testing and sampling of completed goods similar to the requirements of UNDP, where available; and
- g) Other means that UNDP may deem appropriate, at any stage within the selection process, prior to awarding the contract.

30. Clarification of Bid

To assist in the examination, evaluation and comparison of bids, UNDP may, at its discretion, ask any Bidder to clarify its Bid.

UNDP's request for clarification and the Bidder's response shall be in writing. Notwithstanding the written communication, no change in the prices or substance of the Bid shall be sought, offered, or permitted, except to provide clarification, and confirm the correction of any arithmetic errors discovered by UNDP in the evaluation of the Bid, in accordance with ITB Clause 35.

Any unsolicited clarification submitted by a Bidder in respect to its Bid, which is not a response to a request by UNDP, shall not be considered during the review and evaluation of the Bid.

31. Responsiveness of Bid

UNDP's determination of a Bid's responsiveness will be based on the contents of the Bid itself.

A substantially responsive Bid is one that conforms to all the terms, conditions, and specifications of the ITB without material deviation, reservation, or omission.

If a Bid is not substantially responsive, it shall be rejected by UNDP and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.

32. Nonconformities, Reparable Errors and Omissions

32.3 Provided that a Bid is substantially responsive, UNDP may waive any non-conformities or omissions in the Bid that, in the opinion of UNDP, do not constitute a material deviation.

32.4 Provided that a Bid is substantially responsive, UNDP may request the Bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

32.5 Provided that the Bid is substantially responsive, UNDP shall correct arithmetical errors as follows:

- a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of UNDP there is an obvious misplacement of the decimal point in the unit price, in which case the line item total as quoted shall govern and the unit price shall be corrected;
- b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to the above.

32.6 If the Bidder does not accept the correction of errors made by UNDP, its Bid shall be rejected.

F. AWARD OF CONTRACT

33. Right to Accept, Reject, or Render Non-Responsive Any or All Bid

- 33.1 UNDP reserves the right to accept or reject any Bid, to render any or all of the Bids as non-responsive, and to reject all Bids at any time prior to award of contract, without incurring any liability, or obligation to inform the affected Bidder(s) of the grounds for UNDP's action. Furthermore, UNDP is not obligated to award the contract to the lowest price offer.
- 33.2 UNDP shall also verify, and immediately reject their respective Bid, if the Bidders are found to appear in the UN's Consolidated List of Individuals and Entities with Association to Terrorist Organizations, in the List of Vendors Suspended or Removed from the UN Secretariat Procurement Division Vendor Roster, the UN Ineligibility List, and other such lists that as may be established or recognized by UNDP policy on Vendor Sanctions. (See http://www.undp.org/content/undp/en/home/operations/procurement/procurement_protest/)

34. Award Criteria

Prior to expiration of the period of Bid validity, UNDP shall award the contract to the qualified and eligible Bidder that is found to be responsive to the requirements of the Schedule of Requirements and Technical Specification, and has offered the lowest price (See DS No. 32).

35. Right to Vary Requirements at the Time of Award

At the time of award of Contract, UNDP reserves the right to vary the quantity of the goods and/or related services, by up to a maximum twenty five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

36. Contract Signature

Within fifteen (15) days from the date of receipt of the Contract, the successful Bidder shall sign

and date the Contract and return it to UNDP.

Failure of the successful Bidder to comply with the requirement of ITB Section F.3 and this provision shall constitute sufficient grounds for the annulment of the award, and forfeiture of the Bid Security if any, and on which event, UNDP may award the Contract to the Bidder with the second highest rated Bid, or call for new Bid.

37. Performance Security

A performance security, if required, shall be provided in the amount and form provided in Section 9 and by the deadline indicated in the **Data Sheet** (DS no. 14), as applicable. Where a Performance Security will be required, the submission of the said document, and the confirmation of its acceptance by UNDP, shall be a condition for the effectivity of the Contract that will be signed by and between the successful Bidder and UNDP.

38. Bank Guarantee for Advanced Payment

Except when the interests of UNDP so require, it is the UNDP's preference to make no advanced payment(s) on contracts (i.e., payments without having received any outputs). In the event that the Bidder requires an advanced payment upon contract signature, and if such request is duly accepted by UNDP, and the said advanced payment exceeds 20% of the total Bid price, or exceed the amount of USD 30,000, UNDP shall require the Bidder to submit a Bank Guarantee in the same amount as the advanced payment. A bank guarantee for advanced payment shall be furnished in the form provided in Section 10.

39. Vendor Protest

UNDP's vendor protest procedure provides an opportunity for appeal to those persons or firms not awarded a purchase order or contract through a competitive procurement process. In the event that a Bidder believes that it was not treated fairly, the following link provides further details regarding UNDP vendor protest procedures: <http://www.undp.org/procurement/protest.shtml>

Instructions to Bidders

DATA SHEET²

The following data for the supply of goods and related services shall complement / supplement the provisions in the Instruction to Bidders. In the case of a conflict between the Instruction to Bidders and the Data Sheet, the provisions in the Data Sheet shall prevail.

DS No.	Cross Ref. to Instructions	Data	Specific Instructions / Requirements
1		Project Title:	Supply and Installation of Solar Panels
2		Title of Goods/Services/Work Required:	Supply and Installation of Solar Panels on The rooftop of the Ministry of Environment.
3		Country:	Cambodia
4		Minimum Qualifying Criteria (Clauses 9.1 & 9.2)	Please refer to section F.34
4	C.13	Language of the Bid:	<input checked="" type="checkbox"/> English
5	C.20	Conditions for Submitting Bid for Parts or sub-parts of the Total Requirements	<input checked="" type="checkbox"/> Not allowed
6	C.20	Conditions for Submitting Alternative Bid	<input checked="" type="checkbox"/> Shall be considered. A Bidder may submit an alternative Bid, <u>but only if it</u> also submits a Bid that meets the base case (i.e., what is originally required by UNDP in this ITB). UNDP shall only consider the alternative bid offered by the Bidder who's Bid for the base case was determined to be a responsive Bid that offers the lowest price.
7	C.22	Site visit will be held on:	Time: From 10:00 am to 12:00 pm Date: 03 July 2018 Venue: Ministry of Environment

² All DS number entries in the Data Sheet are cited as references in the Instructions to Bidders. All DS Nos. corresponding to a Data must not be modified. Only information on the 3rd column may be modified by the user. If the information does not apply, the 3rd column must state "n/a" but must not be deleted.

			<p>48, Samdach Preah Sihanouk Boulevard, Phnom Penh The UNDP focal point for the arrangement is: Sereyvattana Chan E-mail: sereyvattana.Chan@undp.org</p> <p>The interested bidders require to notify UNDP whether they intend to join project site visit no later than 12:00 pm on 02 July 2018, Cambodia time.</p>
	C.21.1	Period of Bid Validity commencing on the submission date	<input checked="" type="checkbox"/> 120 days
9	B.9.5 C.15.4 b)	Bid Security	<input checked="" type="checkbox"/> Not Required
10	B.9.5	Acceptable forms of Bid Security ³	<input checked="" type="checkbox"/> Non Applicable
11	B.9.5 C.15.4 a)	Validity of Bid Security	<input checked="" type="checkbox"/> Non Applicable
12		Advanced Payment upon signing of contract	<input checked="" type="checkbox"/> Allowed up to a maximum of 20 % of contract ⁴
13		Liquidated Damages	<input checked="" type="checkbox"/> Will be imposed under the following conditions: <ul style="list-style-type: none"> Percentage of contract price per day of delay: 0.5% Max. no. of days of delay: 14 calendar days After which UNDP may terminate the contract
14	F.37	Performance Security	<input checked="" type="checkbox"/> Not Required
15	C.17 C.17.2	Preferred Currency of Bid and Method for Currency conversion	<input checked="" type="checkbox"/> United States Dollars (US\$)
16	B.10.1	Deadline for submitting requests for clarifications/ questions	3 days before the submission date.

³ Surety bonds or other instruments issued by non-bank Financial Institutions are least preferred by UNDP. Unless stated otherwise, they shall be considered unacceptable to UNDP.

⁴ If the advanced payment that the Bidder will submit will exceed 20% of the Price Offer, or will exceed the amount of USD 30,000, the Bidder must submit an Advanced Payment Security in the same amount as the advanced payment, using the form and contents of the document in Section 10

		questions	
17	B.10.1	Contact Details for submitting clarifications/questions ⁵	Focal Person in UNDP: sereyvattanachan@undp.org E-mail address dedicated for this purpose: sereyvattana.chan@undp.org and procurement.kh@undp.org
18	B.11.1	Manner of Disseminating Supplemental Information to the ITB and responses/clarifications to queries	<input checked="" type="checkbox"/> Direct communication to prospective Bidders by email or fax, and Posting on the website ⁶ http://procurement-notice.undp.org
19	D.23.3	No. of copies of Bid that must be submitted	Original: 1 Copies : 1 in PDF file store in CD or USB drive.
20	D.23.1 b) D.23.2 D.24	Bid submission address	UNDP Cambodia, Registry Office (Building No. 5) No. 53, Pasteur Street, Boeung Keng Kang I PO Box 877, Phnom Penh, Cambodia
21	C.21.1 D.24	Deadline of Bid Submission	Date and Time : July 12, 2018 by 12:00 p.m., Cambodia time.
22	D.23.2	Manner of Submitting Bid	<input checked="" type="checkbox"/> Courier/Hand Delivery
23	D.23.2 D.26	Conditions and Procedures for electronic submission and opening, if allowed	N/A
24	D.23.1 c)	Date, time and venue for opening of Bid	Date and Time: July 12, 2018 at 2:00 p.m, Cambodia time. Venue : Operations Meeting Room, UNDP Building 5
25		Evaluation method to be used in selecting the most responsive Bid	<input checked="" type="checkbox"/> Non-Discretionary "Pass/Fail" Criteria on the Technical Requirements; and <input checked="" type="checkbox"/> Lowest price offer of technically qualified/responsive Bid
26	C.15.1	Required Documents that must be Submitted to Establish	<input checked="" type="checkbox"/> Company Profile, which should <u>not</u> exceed fifteen (15) pages, including printed brochures and

⁵ This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was officially received.

⁶ Posting on the website shall be supplemented by directly transmitting the communication to the prospective offerors.

		<p>Qualification of Bidders (In "Certified True Copy" form only)</p> <p><i>[check all that apply, delete those that will not be required.]</i></p>	<p>product catalogues relevant to the goods/services being procured</p> <p><input checked="" type="checkbox"/> Valid Certificate of Registration of the business, including Articles of Incorporation, or equivalent document if Bidder is not a corporation.</p> <p><input checked="" type="checkbox"/> Duly authorized to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer.</p> <p><input checked="" type="checkbox"/> List and value of projects performed for the last 3 years with similar nature and complexity, plus client's contact details who may be contacted for further information on those contracts.</p> <p><input checked="" type="checkbox"/> Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country.</p> <p><input checked="" type="checkbox"/> Quality Certificate (e.g., ISO, etc.) and/or other similar certificates, accreditations, awards and citations received by the Bidder, if any</p> <p><input checked="" type="checkbox"/> Duly signed and completed Forms in Section 4, 5, and 6</p> <p><input checked="" type="checkbox"/> Latest Financial Statement (Income Statement and Balance Sheet) for the last two year in English. UNDP will check the financial accounts to compute the quick ratio (QR). Quick ratio tests the company's financial strength and liquidity by calculating a company's liquid assets in proportion to its liabilities.</p> <p><input checked="" type="checkbox"/> Completed the Minimum Technical Requirement form in section 3.a</p> <p><input checked="" type="checkbox"/> Properly filled-in Priced as per the format with company stamp and signature in Section 7.</p> <p><input checked="" type="checkbox"/> All information regarding any past and current litigation during the last two (2) years, in which the bidder is involved, indicating the parties concerned, the subject of the litigation, the amounts involved, and the final resolution if already concluded.</p>
27		Other documents that may be Submitted to Establish Eligibility	N/A
28	C.15	Structure of the Technical Bid and List of Documents to be Submitted	N/A

29	C.15.2	Latest Expected date for commencement of Contract	August 1, 2018								
30	C.15.2	Maximum Expected duration of contract	6 weeks after signing the contract.								
31		UNDP will award the contract to:	<input checked="" type="checkbox"/> One Bidder only								
32	F.34	Criteria for the Award and Evaluation of Bid	<p><u>Award Criteria</u></p> <p><input checked="" type="checkbox"/> Non-discretionary “Pass” or “Fail” rating on the detailed contents of the Schedule of Requirements and Technical Specifications</p> <p><input checked="" type="checkbox"/> Lowest price offered of technically qualified/responsive bid</p> <p><input checked="" type="checkbox"/> Compliance on the following qualification requirements :</p> <p><u>Stage 1: Mandatory Pass/Fail Criteria</u></p> <p>Bidders must meet all the following mandatory Pass/Fail criteria to qualify for Stage 2 of the bid evaluation:</p> <table><tr><th>Mandatory Pass/Fail Criteria</th><th>Compliance (Yes/No)</th></tr><tr><td>Vendor is a legally registered entity</td><td></td></tr><tr><td>Duly authorized to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer. OR Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country</td><td></td></tr><tr><td>Duly signed and completed Form in Section 4 (Bid Submission Form)</td><td></td></tr></table> <p><u>Bid Evaluation Criteria</u>⁷</p> <p><input checked="" type="checkbox"/> At least 3 years of experience in supplying and solar panels installation.</p> <p><input checked="" type="checkbox"/> Minimum 2 similar scope of projects undertaken over the past 3 years.</p>	Mandatory Pass/Fail Criteria	Compliance (Yes/No)	Vendor is a legally registered entity		Duly authorized to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer. OR Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country		Duly signed and completed Form in Section 4 (Bid Submission Form)	
Mandatory Pass/Fail Criteria	Compliance (Yes/No)										
Vendor is a legally registered entity											
Duly authorized to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer. OR Official appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country											
Duly signed and completed Form in Section 4 (Bid Submission Form)											

⁷ Pls. reconcile and ensure consistency with the contents of the Technical Specifications

			<input checked="" type="checkbox"/> Full compliance of Bid to the minimum technical specification. <input checked="" type="checkbox"/> Compliance with UNDP schedule of requirements (Section 3a). <input checked="" type="checkbox"/> Acceptance of UNDP General's Terms and Conditions for contract (Section 10).
33	E.29	Post qualification Actions	<input checked="" type="checkbox"/> Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; <input checked="" type="checkbox"/> Inquiry and reference checking with other previous clients on the quality of performance on ongoing or previous contracts completed; <input checked="" type="checkbox"/> Physical inspection of the bidder's plant, factory, branches or other places where business transpires, with or without notice to the bidder; <input checked="" type="checkbox"/> Testing and sampling of completed goods similar to the requirements of UNDP, where available; and <input checked="" type="checkbox"/> Other means that UNDP may deem appropriate, at any stage within the selection process, prior to awarding the contract.
34		Conditions for Determining Contract Effectivity	<input checked="" type="checkbox"/> A countersigned and duly executed contract <input checked="" type="checkbox"/> UNDP's approval of plans, drawings, samples, etc. <input checked="" type="checkbox"/> UNDP's receipt of Insurance policies as required by the contract
35		Payment Terms	<p>1st payment: 20% of contract amount will be paid upon signing the contract</p> <p>2nd payment: 50% of contract amount will be paid upon finishing all installations of the system and being ready for final commissioning.</p> <p>3rd payment: 20% of contract amount will be paid after final approval of commissioning and finish the corrections required on punch list.</p> <p>4th payment: 10% of the contract amount will be paid after one year of operation, with proper support of Contractor in case of incident of the system.</p>
36		Other Information Related to the ITB ⁸	N/A

⁸ Where the information is available in the web, a URL for the information may simply be provided.

Section 3a: Schedule of Requirements and Minimum Technical Specifications

1. Background:

UNDP Cambodia intends to implement a solar rooftop project on the head office of Cambodian Ministry of Environment (MoE). The expected maximum capacity of the solar system is 66kWp, installed on the two large terraces of the building.

2. Purposed and objective:

UNDP is looking for a contractor to complete works for the solar photovoltaic system to be installed on the Cambodian Ministry of Environment (MoE) head office in Phnom Penh, Cambodia.

The PV system proposed here is a grid-synchronized standalone system with no battery storage. This choice has been made in order to cover about 8.5% of the energy consumption of the building, as it only operates in office hours. This solar system is an intermittent source of electricity, with an output power directly proportional to the solar irradiation (W/m^2).

The PV system will be connected to the existing power supply grid of the building, to feed the electrical demands of building's equipment in an self-consumption operating mode.

The present works is about:

- Supply and installation of a support structure for the photovoltaic modules on the selected roofs, appropriate required security equipment and waterproofing features
- Supply and installation of the photovoltaic modules
- Supply and installation of the inverters, electrical protections, electrical cabinets and boxes, electrical pipes and conduits until the LV connection point in the electrical cabinet of the existing technical room of each building, and connecting the completed solar system to the power supply system of the building
- Supply and installation of the monitoring system of the solar PV system, including a meteorological station. A display panel will be installed in order to communicate about the project and allow easy follow up. The location for this panel will be discussed between the Contractor and the administrator of MoE head office.

The Contractor will be in charge of conducting the necessary engineering studies before starting installation works. MoE staff will supervise the project and conduct on-site inspections. ARTELIA Cambodia has been appointed as international solar consultant for the evaluation of the technical part of the bidding and for commissioning works.

3. LIMITATION OF SERVICES

The present tender is made of a single-lot. The schedule of works will depend on the operational constraints of the office, which are relatively low.

The limitation of services will be detailed hereafter. However, the Contractor shall be responsible for

warning the MoE during the preparation phase if considering that additional information or adjustments are necessary before starting installation works.

Failure to do so may result in full responsibility of the Contractor for any service not explicitly described but necessary for the completion of works, and for any service not scheduled in the works in progress. In order to fulfill this obligation, the Contractor will have to ask MoE for any construction layout showing the works and existing infrastructure with whom they may interact.

4. SPECIFICITIES LINKED TO THE ENVIRONMENT

The equipment supplied and installed within the framework of the present tender shall be designed to operate within the context of the guarantees provided and considering the particular constraints of the site, in order to ensure a lifespan of at least 25 years.

Particular attention will be paid to the solar design, infrastructure, maintenance and functioning of the materials in the following conditions:

- Location: Head office of Ministry of Environment, 48, Samdach Preah Sihanouk Boulevard, Phnom Penh 12301, Cambodia (11.555°N / 104.939°E)
- Cambodian national standards about wind pressure and highest wind speed
- Risk of earthquake in the region of Phnom Penh: level I-V on Mercalli scale
- Relative humidity of air: up to 100%
- Maximum operating temperature of the equipment: 45°C

Galvanized steel equipment shall be hot-dip galvanized after being manufactured. Any worn galvanized item shall be replaced. For all necessary rework, a new paint shall be applied in accordance with the related standards.

Particular attention will be paid to avoiding risks of corrosion, in particular electrolytic attack by certain materials.

When submitting its bid, the Contractor will provide all technical documentation concerning the materials to be supplied, including information on lifespan and UV resistance.

5. ELEMENTS INCLUDED IN THE LUMP SUM

The services included in the present contract are indicated in (but not limited to) the following list:

- All necessary measures for proper completion of the project:
 - Delivery, mounting, operation and removal of access and lifting equipment necessary for the completion of the project
 - Cleaning of the work and its site during and after completion of the works
 - Enforcement of hygiene and security measures (for people and materials) during the works (HSE)
- All necessary measures for proper completion of the construction works:

- Accessories, equipment and materials necessary for the good completion of the construction works.
- All necessary measurements for the design of the structures.
- Design calculations of the structures.
- Construction drawings of the structures, layouts and detail sections.
- All technical information, including drawings of detail design, as-built design, calculation data, and any other necessary documents for the compliance with regulation of Cambodia and standards on EDC for grid-synchronized solar system.
- All implementation difficulties.
- Surveillance of the installed equipment until acceptance of completed works (ACW).
- Attendance to all site meetings.
- Implementation and stake out of the structures.

The Contractor in charge of the execution of the present contract is deemed to have carried out a site reconnaissance and investigation on the existing roof structures that will be impacted during the project. The Contractor shall locate them and appraise the importance and nature of the works, the difficulties and constraints resulting from the works.

The information provided in the present record is for general information purposes only. Any additional information will be provided by the Contractor, under its own responsibility.

Therefore, the Contractor shall carry out the described services, performing and developing its own knowledge and know-how, until final completion of the works and proper functioning of the installations.

Accordingly, the complete structure includes, in addition to the supply and installation of the material and equipment, all ancillary necessary works, and in particular:

- Pockets and perforations layouts (core-drilling, manholes, etc.)
- Other core-drilling operations than those for scheduled pockets and perforations
- Calking operations resulting from the fastening of equipment
- Anti-rust protection of ferrous metals
- Supply, on-site transfer, storage, complete implementation of all materials/equipment necessary for the construction of the structures/installations
- Provision of qualified staff and materials necessary for the coordination, control, testing and acceptance operations
- Supports of all materials (supply and mounting)
- Anti-corrosion protection of the material and final coat of painting

- Lifting and handling equipment for the implementation of the materials
- Miscellaneous fittings and finishing touch with the same materials
- Sealing core-drilling operations, fixtures, seals and fixing devices
- Constraints to install ducts, sheaths, etc.
- Core-drilling and opening of partition walls for the passage of ducts from the outside to the interior and restoration of an appropriate fire resistance rating, if necessary
- All constraints related to scaffolds, collective protection equipment necessarily implemented during the works and waterproofing verification
- Regular disposal of packaging
- Disposal of excavated material (spoils, rubbish), tidying up of the premises before acceptance of completed works (ACW)
- De-dusting of every devices at the end of the project

The list of supplies mentioned in the contract's documents is indicative and not restrictive.

It is understood that the Contractor will have to provide:

- All supplies indicated on the layouts and diagrams, and not necessarily mentioned in the texts, and vice versa;
- All accessories prescribed by the regulations/rules in force and/or necessary for proper functioning of the installations and not mentioned in the texts.

6. LUMP SUM CONTRACT

This contract shall be awarded for a lump sum; therefore the Contractor acknowledges having acquainted himself with:

- The whole tendering documents;
- The location/site where the works set out in the Contract will take place, and their means of access.

The Contractor shall not invoke, after signature of the Contract, insufficient knowledge of the works site or its access for the sole purpose of claiming extra remuneration.

Some supplies or services, of second importance or not, but essential for the completion of works may not be explicitly described or mentioned:

- Either by omission
- Or because they are normally considered compulsory according to the rules or good practice of the profession
- Or because they are resulting from requirements of technical or regulatory documents.

The lack of information referred to above shall not grant the Contractor the right to deny the

obligations of good execution and completion of works.

Through professional knowledge, the Contractor in charge of the execution of the works must compensate for potential inaccuracies or inadequacies of descriptive documents, and if a task is described in only one written or graphic document of the Contract, it has to be performed without restriction or reservation.

The amount of the lump sum price will be fixed in the bill of quantities (BoQ) provided in the tender document.

7. OBLIGATIONS OF THE CONTRACTOR

7.1 Site visit:

The Contractor shall appraise the difficulties that would be encountered because of the structure's design, its constraints, the existing structures, its access or its composition. Hence, Contractor shall plan a site visit with MoE's officer as soon as possible.

The Contractor is deemed to have located the site and appraised the importance and nature of the works, the difficulties and constraints resulting from the works.

7.2 Knowledge about the existing construction:

The Contractor acknowledges having taken into account all the design assumptions mentioned in the present document and all the as-built records concerning the building. The Contractor will respect the described services.

Any intended change in the works will be submitted to MoE for approval before starting installation works.

Subsequently, the Contractor shall not plead ignorance in order to avoid some essential works necessary for the proper completion of the construction works.

The Contractor will have the sole authority to decide what measures have to be taken and what means have to be implemented in order to fulfill its assignment, under approval by MoE.

7.3 Tidying up of the site:

The Contractor will make sure the site is cleaned regularly and will take all the necessary measures to protect the implemented structures. Cleaning, repairing and restoration of the equipment/materials that have been soiled or deteriorated shall be done accordingly.

7.4 Guard services:

The Contractor is responsible for its own material, and will take all necessary measures for its surveillance. The Client shall not be responsible for any damage or theft during the construction phase. It is recommended that its Project Manager stays on site during the whole period of works.

7.5 Safety and health protection:

During the whole duration of works, the Contractor shall ensure the health and safety of the employees. To this end, the Contractor will implement all appropriate arrangements to protect the employees against falls from a height, dust and liquids.

It should be noted that the lump sum includes all the necessary measures to be taken and

equipment/structures in order to ensure the protection against falls from a height for the personnel who will be working or walking on the roofs.

The Contractor will also be responsible for the proper use of the personal protection equipment by workers (harness, helmet, safety boots, etc.).

7.6 Implementation:

The Contractor will have to supervise the materials' implementation. The Contractor shall assume full responsibility for implementing all the necessary base lines (stake out) before starting installation works.

In case of errors leading to some re-installation, re-construction or delays, the Contractor will bear all financial consequences thereof.

Any drilling works (or others construction activities that disturb the building) must be discussed and approved by MoE administrator.

8. REGULATIONS – STANDARDS

Hereafter are the main standards that the project shall be compliant with:

Field	International standards
Low voltage electrical installation	Distribution Design Standard of EDC IEC 60 364 Electrical Installations for Buildings
Design of solar PV PV systems	IEC 60364-7-12 Electrical installations of buildings - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems IEC 62548 Photovoltaic (PV) arrays - Design requirements
Surge protection device	Distribution Design Standard of EDC IEC 61643-12 Low-voltage surge protection devices - Part 12 : Surge protection devices connected to low-voltage power distribution systems - Selection and application principles Electric Power Technical Standards Of The Kingdom Of Cambodia
Solar PV crystalline silicon modules	IEC 61 215 Crystalline silicon terrestrial photovoltaic (PV) modules - Design qualification and type approval IEC 61 721 Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
Solar cables	IEC 60228 Conductors of insulated cables IEC 60332-1 Tests on electric and optical fibre cables under fire conditions (category C2) IEC 61034-2 : Measurement of smoke density of cables burning under defined conditions IEC 60754 Test on gases evolved during combustion of materials from cables (halogen-free)

Field	International standards
	IEC 60216 Electrical insulating materials - Thermal endurance properties IEC 60 811-2-1 Common test methods for insulating and sheathing materials of electric and optical cables Part 2-1: Methods specific to elastomeric compounds - Ozone resistance, hot set and mineral oil immersion tests
Hot-dip galvanization and anti-corrosion treatment	ISO 1461 Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods ISO 12944 : Paints and varnishes - Corrosion protection of steel structures by protective paint systems
Design calculations standards	Electric Power Technical Standards Of The Kingdom Of Cambodia <u>EN 1991</u> : (Eurocode 1) Actions on <u>structures</u> <u>EN 1999</u> : (Eurocode 9) Design of <u>aluminium</u> structures <u>EN 1993</u> : (Eurocode 3) Design of <u>steel</u> structures <u>ISO 4354</u> Wind actions on structures <u>ISO 22111</u> Bases for design of structures - General requirements <u>ISO 13823</u> General principles on the design of structures for durability
Cable trays	IEC 61 537 Cable management - Cable tray systems and cable ladder systems
Inverters	Regulation On Solar Power Generation by EAC IEC 61727 Photovoltaic (PV) systems - Characteristics of the utility interface IEC 61000-3 Electromagnetic compatibility (EMC) IEC 62109 Safety of power converters for use in photovoltaic power systems - Part 1: General requirements - Part 2: Particular requirements for inverters IEC 62116 Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters
Switchgear	Distribution Design Standard of EDC IEC 60439 Low-voltage switchgear and control gear assemblies IEC 60947 Low-voltage switchgear and control gear Electric Power Technical Standards Of The Kingdom Of Cambodia

9. STUDIES, LAYOUTS AND ACCEPTANCE OF WORKS

9.1 Technical bid:

In the technical bid, following technical documents shall be provided:

General points	Yield estimation study of the planned installation
	Planned schedule

	Insurance certificates
	List of similar services performed in the past 5 years
	Curriculum Vitae of key staff member, and staff organization for the works
	Professional qualifications
Support structure of the modules	Data sheet of the structure
	Design calculation of the manufacturer or similar elements to confirm the strength and stability of the structure in local conditions
	Calculations related to waterproofing issues and proposed measures to mitigate the risk
Solar photovoltaic (PV) modules	Data sheet
	Product warranty certificate and warranty conditions
DC cables	Data sheet
Cable trays	Data sheet for each type of cable tray
Inverters	Data sheet
	Product warranty certificate and warranty conditions
AC cables	Data sheet
Data acquisition and monitoring	Data acquisition cables data sheet
	Data sheet for acquisition equipment (temperature sensor, pyranometer, energy meter)
	Data sheet for data logger
	General presentation of the data acquisition system, including display panel
LV PV cabinet	Technical specifications of the circuit breakers and surge protection device
	Emergency stop diagram and data sheet of the push button switch and relays
	Data sheet of the external automatic disconnection device
	Data sheet of the enclosure(envelope)

Failure to comply with the provision of only one above-mentioned document will result in rejection of bid.

9.2 Yield estimation study

The Contractor will carry out an energy yield estimation study for the designed PV system. The Contractor will use PV SYST Software or equivalent tool.

This energy yield estimation study will estimate the PV system losses with expected equipment to be installed:

- Modules and functioning conditions (mismatch due to the disparity in power of the modules, soiling impact, functioning temperature, etc.)
- Efficiency of the inverters (intrinsic yield – Overall Efficiency = Average Inverter Output / Average PV Output, etc.)
- Ohmic losses in cables and electrical boxes (AC & DC)
- Losses due to operational risks (life cycle and availability of equipment, shut down for repairs and maintenance, self-consumption, etc.)
- Losses due to expected shading due to topography of the rooftops of the buildings and near shading from neighboring roofs (high-rise buildings mostly).

The Contractor shall use the most accurate available solar resource for the site of the project for the simulations (Meteonorm, SolarGIS or equivalent data).

The calculated results shall be monthly profiles of potential energy yield and performance ratio for a full year and for the given PV installed capacity as well as the annual detailed production, over 25 years, considering an annual decrease in production.

9.3 Evaluation of bids

The evaluation of the tenders will be carried out using following criteria, without weighting or prioritization:

- Solar experience and relevant PV projects' references
- Costs of delivery
- Guarantees, whether on the equipment or on the expected performance of the photovoltaic power system, over the lifetime of the system
- Ability to assume the assignment (available means, financial situation, insurance, possession of necessary technical approvals, etc.).

9.4 Execution drawings

The Contractor will have to provide all the design calculations and execution layouts necessary to fulfill the assignment and required by MoE.

The Contractor will have to provide the execution studies necessary for its own structures.

The precise list of layouts, diagrams and design calculations will be jointly agreed with and provided to MoE at the very start of the studies. However, MoE reserves the right to subsequently request detailed execution layouts for a better understanding.

The Contractor shall be responsible for preparing the execution documents and technical layout. In particular, the Contractor will carry out the following studies and produce the following execution layouts, as part of this assignment (non-exhaustive list):

General points	Yield assessment study of the PV system
	Schedule and updates

	Frame of control sheets for works to be carried out
	General single line diagram of the power circuit
	General single line diagram of the data acquisition circuit
	DC cables list
	AC cables list
	Data acquisition cables list
	Design calculation of cables and protections
Support structure of the modules	Design calculation confirming the strength and stability of the structure
	Detailed layout of the structures fastening on the rooftop
	Assembly instructions for the structure
	Nuts & screws data sheet
	Rails and materials data sheet
	Mounting base information (size, weight, concrete grade, etc.)
Solar photovoltaic (PV) modules	Assembly instructions for the solar PV modules
	Design calculation proving the stability of the modules on the structure in accordance with the manufacturer's recommendations
	Flash tests for all the modules
	Layout drawings and surface calculation
DC cables	DC cables data sheet
	Wiring layout of the modules (power cables)
	Wiring layout of the equipotential cables and detail of connections to metallic equipment
Cable trays	Technical documentation of the cable trays on carports
	Technical documentation of the cable trays in the carports' posts and metal covers
	Detailed layout of the cable trays fastening on the carports
	Detailed layout of the cable trays fastening in the carports' posts
	Design calculation to prove the manufacturer's installation conditions have been respected (supported weight, spacing of fastening points)
	Detailed layout of the metal cover on the post's base
Inverters	Data sheet
	Installation instructions
	Maintenance instructions
	Detailed layout of inverters' fastening on the structure
	Design calculation proving the stability of the inverters
AC cables	AC cables data sheet
Data acquisition and monitoring	Data acquisition cables data sheet
	Acquisition equipment data sheet (temperature sensor, energy meter, pyranometer,)

	Data logger data sheet
LV PV cabinet	Layouts of LV PV cabinet (plan view, detailed single line diagram)
	Technical specifications of the circuit breakers, surge protection devices
	Emergency stop diagram and data sheet of the push button switch and relays
	Data sheet of the external automatic disconnection device
	Installation and setting up instructions for the external automatic disconnection device
	Data sheet of the enclosure

All the execution documents will be provided in the following formats:

- AUTOCAD DWG for the drawings/diagrams and graphic documents,
- ACROBAT PDF for the installation/assembly instructions and other manufacturers documents,
- WORD and EXCEL format for every other document.

All the documents will be provided in English language.

9.5 Monitoring of the implementation:

The Contractor will have to implement a systematic control plan of the works execution. MoE shall be provided with weekly self-inspection sheets..

These weekly self-inspection sheets and the independent control carried out by MoE staff are prerequisites for the payment requests validation.

The Contractor will pay particular attention to the following points:

Installation and fastening of the structure	Control of the structure's fastening
	Control of the anti-corrosion protection (new paint applied after each cutting)
	Control of the rails, plate bearings, concrete base alignment
Installation and fastening of the modules	Control of the mounting clips
	Control of the perfect flatness of the modules
Installation and setting up of the surge protection device's enclosure	Control of the structures and enclosure's fastening
	Control of the compliance of the enclosure with the layouts
Fastening of the cable trays	Control of the cable trays fastening
	Control of the absence of corrosion attack

Potential equalization	Control of the ground continuity and of the grounding (ground resistance measurements)
Electrical architecture	Control of the cables and installations compliance with the general and enclosures single line diagrams

9.6 Mechanical completion, controls, testing:

The Contractor shall inform MoE as soon as the whole installations are in working order. The Contractor will carry out all the necessary no-load operational tests and in particular the following:

Inverter	Control of the functioning parameters
	Control of the grounding
Automatic disconnection device	Control of the operational settings
Data acquisition	Setting up of the data logger
	Setting up of the equipment's communication protocols
	Control of data acquisition (inverters, sensors, meter, automatic disconnection device)

The abovementioned list is not exhaustive. The Contractor shall carry out necessary operational tests, using its own technique, in order to secure and facilitate the future commissioning. The test records will be provided to and validated by MoE.

The commissioning and full load testing will therefore be carried out.

The Contractor is responsible for both no-load and full load testing. These on-site tests will be carried out after upstream and downstream connection, in order to run the final tests and commissioning of the installation.

The necessary equipment and equipped staff to carry out these tests will be provided by the Contractor, and the tests will be carried out until conclusive test results.

Then mechanical completion tests will be performed, including the control of the installations and their performances in particular. These tests will be conducted by ARTELIA.

Particular attention shall be paid to the test of materials, in order to guarantee solidity, grounding, safety of persons and good adjustment of the automatic disconnection device, in order to ensure the best possible energy generation.

At this stage, if the test results are conclusive and under punch-list clearance condition, an ACW (acceptance of completed works) certificate will be delivered.

9.7 As-built record:

After completion of works, the Contractor shall provide the following documents (updated to comply

with the installations actually completed) no later than 1 month after the acceptance request:

General points	Self-inspection sheets
	General single line diagram of the power circuit
	General single line diagram of the data acquisition circuit
	DC cables list
	AC cables list
	Data acquisition cables list
	Design calculation of cables and protections
	Materials and Workmanship Warranty certificate (for all the materials provided)
	Operation and maintenance instructions to guarantee a good functioning and operation of the PV system
	Detailed list of spare equipment/parts necessary for the maintenance
Support structure of the modules	Design calculation confirming the strength and stability of the structure
	Detailed layout of the structures fastening on the framing
	Assembly instructions for the structure
	Nuts & screws data sheet
	Rails and materials data sheet
	Mounting base information
Solar photovoltaic (PV) modules	Assembly instructions for the solar PV modules
	Design calculation proving the stability of the modules on the structure in accordance with the manufacturer's standards and recommendations
	Flash tests of all the modules provided
	Layout drawings and surface calculation
DC cables	DC cables data sheet
	Wiring layout of the modules (power cables)
	Wiring layout of the equipotential cables and detail of connections to metallic equipment
Cable trays	Technical documentation of the cable trays on carports

	Technical documentation of the cable trays in the carports' posts and metal covers
	Detailed layout of the cable trays fastening on the carports
	Detailed layout of the cable trays fastening in the carports' posts
	Design calculation to prove the manufacturer's installation conditions have been respected (supported weight, spacing of fastening points)
Inverters	Data sheet
	Installation instructions
	Maintenance instructions
	Detailed layout of inverters' fastening on the structure
	Design calculation proving the stability of the inverters
AC cables	AC cables data sheet
Data acquisition and monitoring	Data acquisition cables data sheet
	Acquisition equipment data sheet (temperature sensor, pyranometer, energy meter)
	Data logger data sheet
	Instruction manual of the data logger and data acquisition systems
	Cables and connections' terminal block layouts
LV PV cabinet	Layouts of the PV MSB (plan view, detailed single line diagram)
	Technical specifications of the circuit breakers, surge protection devices
	Emergency stop layout and data sheet of the push button switch and relays
	Data sheet of the external automatic disconnection device
	Cables and connections' terminal block layouts
	Installation and setting up instructions for the automatic disconnection device
	Data sheet of the enclosure

After completion of works, and before acceptance of the installations, these documents will be provided as follows:

- All documents: 4 hard copies,
- Layouts and all graphic documents: AUTOCAD .dwg file,
- Manufacturers' instructions and other documents: ACROBAT .pdf file,

- Other documents: WORD and EXCEL files.

All the data will be gathered on a CD-ROM. One soft copy will be sent to the Client for validation before duplicating the CD (4 soft copies).

Each hard copy will be presented as follows:

- A carton folder or a ring binder with tabs corresponding to homogeneous packages of the works
- Layouts and documents as described in the aforementioned list
- For each specific material, the manufacturer's instruction manual will be provided.

The documents comprised in these design and construction drawing and related records will be listed in front page of the dossier, the front page will then be stamped by the Contractor.

10. Operation and Maintenance (O&M):

The Contractor shall provide O&M plan for at least one year of operation of the PV system. The Contractor could propose optional proposal for O&M work, with option for renewing every 5 years.

11. Warranties:

The Contractor shall guarantee the repairing and, if necessary, free replacement (supply and installation) of all or part of the material/equipment if this material/equipment is found defective because the installation does not comply with the present Technical Specifications or with the manufacturer's instructions, within the warranty period, except in case of fortuitous event (theft, vandalism). This warranty will take effect on the date of final acceptance of completed works, after lifting of reservations concerning the services covered by the present specifications.

Each confirmed defect shall be notified to the Contractor so that it can undertake the necessary repairs within 15 days for sealing problems, and within a maximum of 1 month for other problems. After this deadline, the client may automatically undertake the necessary repairs, at the Contractor's expense, without prejudice to any damage and interest that could be claimed if the unrepaired defect was causing an accident or prejudice.

The minimum warranty periods for equipment of the solar system will be as follows:

Equipment	Warranty period
Support structure	5 years
Photovoltaic modules	10 years
Inverters	5 years
Automatic disconnection device	2 years
Cables/Wiring	2 years
Data logger	2 years
Other equipment	1 year

The Contractor is encouraged to propose options for extended warranty of components.

12. SITE SPECIFICATIONS:

12.1 Site Location:

The MoE head office is located in the capital city of Cambodia, *48, Samdach Preah Sihanouk Boulevard, Phnom Penh 12301*. Roof's size is suitable to install a rooftop solar PV system for self-consumption, connected to the power supply system of the building.

The irradiation map shows that Phnom Penh has solar radiation intensity amongst the bests in the country. Average global irradiation of 1980 kWh/m² per year has been recorded on the period from 2007 of 2015, according to SolarGIS.

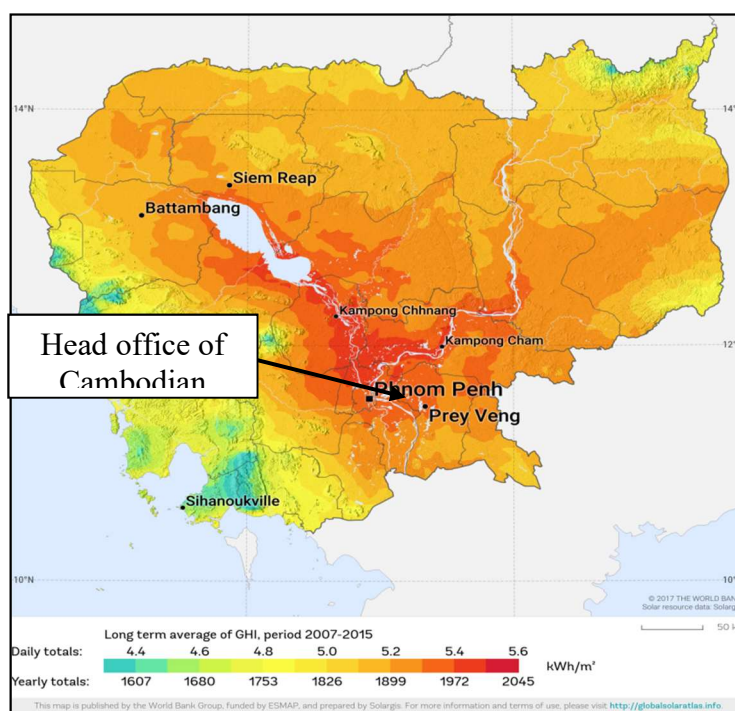


Figure 1: Global horizontal irradiation in Cambodia. Source: Solargis (2007-2015).

12.2 INFORMATION OF THE BUILDING:

The head office building of MoE has been operating for three years, with total roof area of about 1,300m². There are four roofs, including two small terraces and two large terraces. The project is aiming to install PV panels **on the two large terraces only**. Each of large terraces is flat and covered by bitumen for waterproofness. Detailed drawing of the roof will be provided in the tender document.

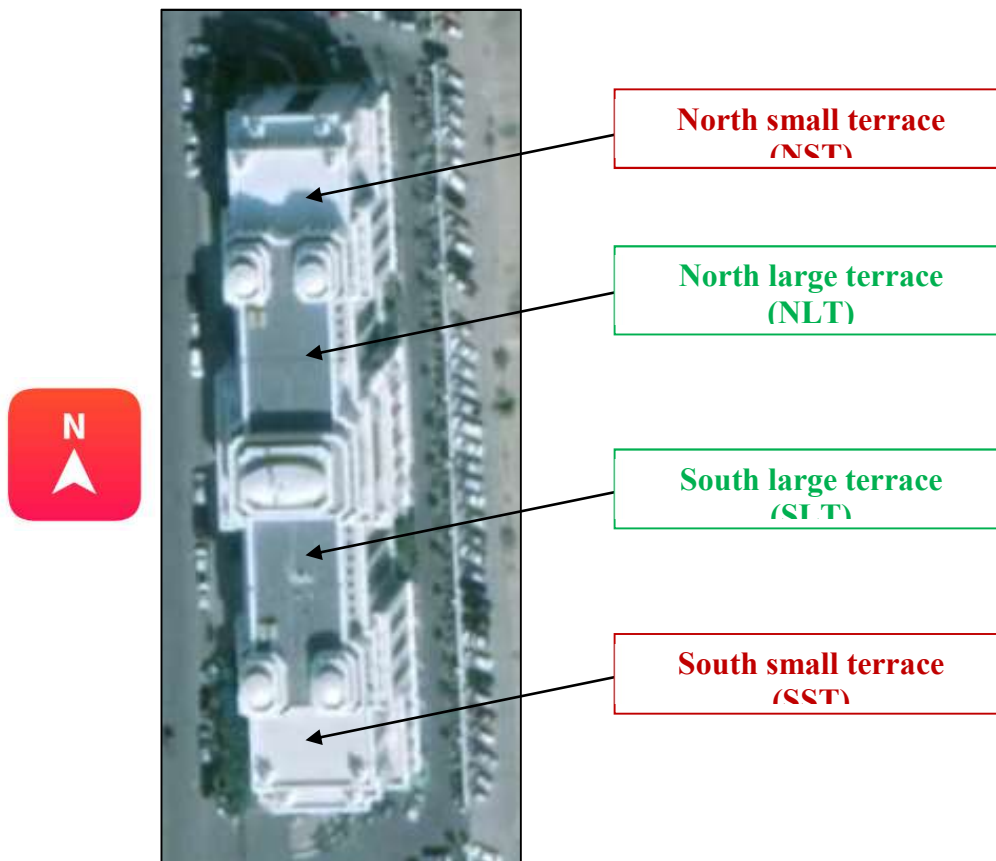


Figure 2: Roofs of the MoE head office building.

The installation of the solar system on two large terraces shall be limited by the followings:

- **Dimension:** Available area of each roof is 17m x 21.5m
- **Handrail:** The handrail covers the surrounding of each roof, with the height of 1.4m. **All PV array must be raised and installed higher than this handrail.**
- **Building envelop:** The construction work must not interrupt the strength and waterproofness of the roof. Any drilling works (or others construction activities that could impact the building) must be discussed and approved by MoE administrator.
- **Water tanks:** There are two water tanks on each roof with the height of about 1.3m. All the work of the Contractor shall not impact those tanks.
- **Weather station:** On the middle of the south large terrace, there is a weather station which shall be removed by the Contractor at the beginning of construction phase.
- **Solar array distribution:** To avoid shading impact of the building itself, following points have to be noticed.

- Orientation: Solar arrays shall be **south-faced**, with adjustment to be parallel with the edge of the building. Tilted angle of the table array shall be **10 degree**.
 - North large terrace: Solar arrays shall be installed at least 2.5m away from the central tower of the building, and 1m away from small towers on the north side of the roof.
 - South large terrace: Solar arrays shall be installed at least 2.5m away from small towers on the south side of the roof, and 1m away from the central tower of the building.
 - According to the chosen configuration (pre-feasibility study), the width of solar arrays will be about 4m and the distance between two rows shall be 1m for the convenience of O&M works. The Contractor can propose alternative configurations with sufficient evidence for better efficiency.
- Combiner boxes will be installed on each terrace, and will be connected to the south technical room of the 5th floor. All cables shall be protected by fixed cable trays and installed to preserve the original beauty of the building. The drilling work for the access of cables into the technical room shall not impact the electrical and plumbing systems of the building. All drill holes shall be filled and re-painted according to the existing design after installation.
 - Connection point: Inverters will be installed in the south technical room of the 5th floor. Output of inverters will be connected with the bus-bar of LV PV cabinet in this room. LV PV cabinet will be connected to the existing main LV electrical cabinet of the 5th floor (which is in the same room).

12.3 SHDING ISSUES:

The terraces on the roof floor have solid handrails with height of 1.4m. In addition, water tanks and the building itself also create shading impact to the solar panels.

High-rise buildings are currently under construction stage near the head office of MoE. The information about the height of the buildings has been given by the officer of MoE. **The main issue is about a 55-story building on the South-West side, causing significantly shade in the afternoon from November to January on south large terrace.** The other high-rise buildings on North and South will not have particular impact on the project.



Figure 3: Positions of surrounding high-rise building.

12.4 Basic design:

This configuration has been developed in order to install PV panels on all available terraces. By removing weather station on the southern large terrace, total area for solar system is 740m². To reduce the shading impact of handrails, PV panels on two roofs will be 1.4m higher than the roof surface.

PV panels are installed south-faced, with 10 degree of tilted angle. The width of solar array is 4m, and distance between two rows is 1m.

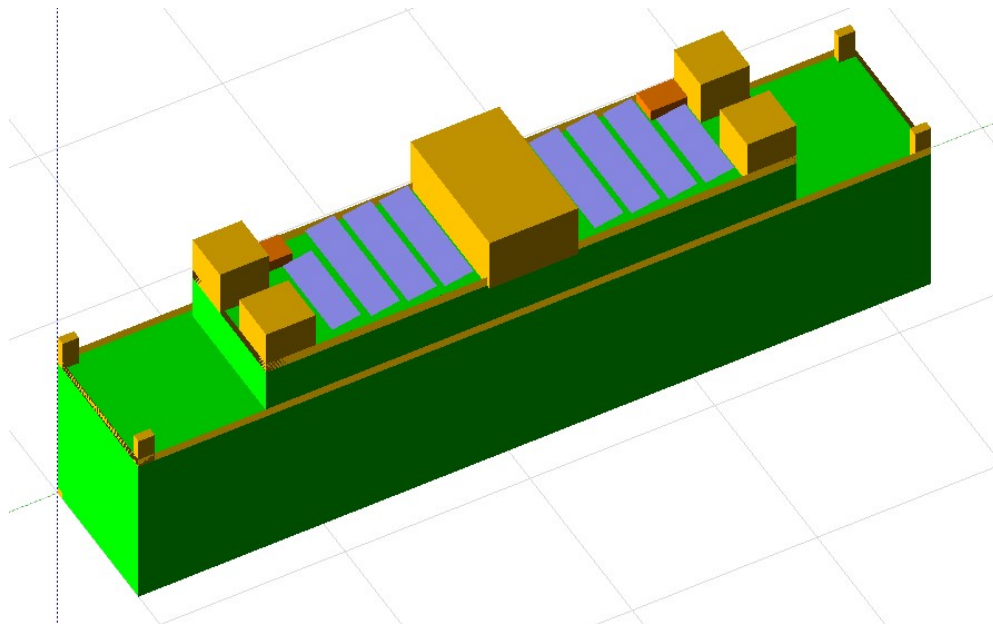


Figure 3: Selected configuration for basic design.

According to the calculations, the proposed PV system for the configuration 2 could reach **66kWp** and produce **91.61MWh** per year. If installed, the PV system can cover **8.5%** of the total load of the building. Performance ratio would be **71.81%**.

Table 1: Proposed pre design of the PV system on MoE head office

Key specifications	Values
Peak power	66.0 kWp
Estimated number of solar panels	200
Type of inverter	10kWac (SG10KTL-EC)
Quantity of inverters	5 inverters

Table 2: Main results of configuration

Main results	Values
Annual solar energy production (MWh/year)	91.61
Solar energy coverage on total load (%)	8.5
Specific yield (kWh/kW.year)	1,388
Near shading loss (%)	10.6
Performance ratio (%)	71.81

13. SCOPE OF WORKS

13.1 Contractor Detailed scope of works

The full scope shall be based on all tender documents including drawings, specifications and BOQ.

- The Contractor shall ensure the performance of all the supplies, works and services required for the full delivery, performance and operability of the 66kWp PV system to the Employer, in accordance with terms and conditions defined in the contractual documents, applicable law, standards and regulations and approvals by the Employer.
- The Contractor scope of works shall include any works and services that are necessary to complete the PV system with expected service lifetime, safe and efficient operability and expected performance.
- The following paragraphs are meant to precise limits of scope of works. Additional activities from the listed ones may then be performed in order to fulfil the requirements. The Scope of Works includes in particular:
 - Additional studies
 - Project management

- Insurances as per applicable law and Employer's requirements
- Design and engineering of works and equipment
- Documentation for the submission for the approval of EDC
- Procurement and supply of equipment
- Temporary work and site facilities
- Erection of equipment
- Related civil works
- Testing and commissioning of the solar system

13.1.1 Additional studies

- Additional studies shall be conducted by the Contractor if necessary.

13.1.2 Project management:

- The Contractor shall coordinate the works on a daily basis. This task shall ensure that the following objectives are fulfilled:
 - Avoid any delay from expected delivery date
 - Avoid any injury to workers and to the environment due to bad coordination
 - Avoid any additional costs due to bad coordination
 - Allow smooth logistics during construction

- The Contractor shall be liable for any consequences linked to a failure in performing this task with respect to these objectives.

13.1.3 Engineering:

The EPC contractor shall provide full technical design for the full solar system.

13.1.4 Documentation for EDC's approval:

The Contractor shall be responsible for providing all necessary documentation (including drawings, datasheets, system descriptions, etc.) for MoE to achieve the approval of EDC for the solar system.

13.1.5 Installation:

- Equipment to be supplied and erected shall include in particular:
 - PV modules
 - Mounting structures
 - String and array combiner boxes, Inverters

- DC-LV, AC-LV, grounding cables, related conducts, fasteners, connectors, terminals, etc.
- Communication cables linked to the monitoring system
- Electrical equipment of the monitoring system
- Spare parts for O&M
- Meteorological station
- Site facilities
- Works to be performed include in particular:
 - Trays for provided cables
 - Mounting structures foundation
 - PV modules cleaning tools

13.1.6 Commissioning:

Commissioning activities include every tasks to be performed in order to verify that equipment, systems and the PV system as whole, comply to the following objectives and requirements:

- Grid Code and other relevant Cambodian law and regulations
- 25-year service lifetime
- Safety and efficiency of operation
- Expected performance

13.1.7 Operation and Maintenance (O&M):

- A training session will be organized by the Contractor for the technical staff of the MoE head office or for an external maintenance company.
- 3-days training session for the maintenance of the equipment (for 3 trainees):
 - Proper use of equipment and systems
 - Maintenance of the installations
 - Troubleshooting.
- Contractor shall provide periodical maintenance & corrective maintenance after commissioning, at least for the first year of operation.
- Extended period for O&M should be discussed with MoE.

14. TECHNICAL SPECIFICATIONS:

14.1 SOLAR PHOTOVOLTAIC MODULES:

The Contractor shall select the photovoltaic modules technology among the following:

- Mono-crystalline
- Poly-crystalline

Only one technology (and same peak power) shall be used in the bid. The modules shall comply with the following specifications.

14.1.1.General specifications:

All PV modules shall include the following parts:

- An upper face of transparent tempered glass with antireflective coating, special attention will be paid to the characteristics of the glass
- One or more PV cells encapsulated in a sealed protection and connected to one another
- A protective layer at the back (TEDLAR, glass or equivalent)
- One junction box containing 2 preinstalled cables with connectors
- One or more bypass diodes in the junction box
- An anodized aluminum frame suitable for laying on tables and structures of power plants on the ground.

Technical characteristics:

- Modules dimensions : 1956 * 992 mm (L * W)
- Module nominal power at STC: minimum 330Wp
- Minimal efficiency of the modules : 16%
- Temperature coefficient: power degradation lower than 0.43% / K
- NOCT in accordance with IEC-61-215 standard: below or equal to 45°C
- Junction box minimum in IP 65
- Operational temperature: up to 85°C
- Maximum permissible load: above the cyclonic wind load stated in A3

The Contractor shall submit all mechanical and electrical characteristics of the selected PV modules. In particular, Contractors must supply $I = f(V)$ curves for the following irradiation: 200 W / m², 400 W / m², 600 W / m², 800 W / m² and 1000 W / m².

Information on the thermal behavior of PV modules shall also be provided. They will have to include **either one** of the following:

- The voltage-current curves for different cell temperatures (e.g. 25°C, 40°C, 60°C)

- The coefficients of loss of power per degree of Celsius, open-circuit voltage loss per degree and short-circuit power gain.

Peak power tolerance of modules:

The Contractor shall specify the peak power tolerance of the supplied modules.

Since a wide tolerance range will reduce the efficiency of the PV system, the value of said peak power tolerance is an important parameter in the choice of modules.

The peak power tolerance of the modules shall be exclusively positive and not exceed + 5W.

Marking:

Each module shall have the following markings by the manufacturer (legible and indelible):

- Name, monogram or symbol of the manufacturer
- Type or model number
- Serial number
- Polarity of terminals or conductors (color codes are allowed)
- The maximum system voltage that the module can support
- The nominal, minimum and maximum values of peak power under standard test conditions (STC), as specified by the manufacturer for each type of product.

The date and place of manufacture must be legibly marked on the module or must be traceable by serial number.

CONDITIONS ON SITE:

PV modules shall be able to withstand the following extreme conditions:

- Ambient temperature: -40°C to +85°C (according to IEC 61125)
- Wind: up to 40m/s
- Mechanical load capacity: up to 5400 Pa (according to IEC 61125 standard)
- Resistance to hail: hailstones $\leq 25\text{mm}$, speed $\leq 23\text{m / s}$ (according to IEC 61125)

Products supplier:

The Contractor shall provide proof of ISO 9001 and ISO 14001 certifications of the manufacturer.

Warranties:

Two types of warranties will be taken into account:

Product warranty:

This product warranty covers any defect in material or workmanship. It includes the replacement of on-

site modules with:

- Removal of defective modules
- Installation and rewiring of replacement modules in perfect working order
- Transport of replacement modules and support for defective modules

The Contractor must propose a PV module warranty of at least 10 years.

Bidders are free to propose better warranty conditions. These additional conditions shall be taken into account at the time of the evaluation of the tenders.

Peak Power warranty:

The Contractor must provide a linear performance warranty expressed in percentage of the nominal power. The peak power of the module at year 20 must be more than 80% of the nominal power.

Bidders are free to propose better warranty conditions. These additional conditions shall be taken into account at the time of the evaluation of the tenders.

The Contractor shall specify the services implemented under the guarantee:

- Replacement of modules under high performance
- Support for production losses
- Removing, installing and rewiring modules

The Contractor shall detail the procedures for validating the loss of peak power beyond the guarantee and must specify:

- The in situ performance control procedure (on-site measurements, use of monitoring, etc.)
- The modalities of choosing the sample of modules to be sent to an independent firm (criteria of choice, quantity of modules to be tested, etc.)
- The procedure for determining failing modules
- The source of financing for these checks and controls

15. MOUNTING STRUCTURE:

The integration system consists of the elements ensuring the fastening of the photovoltaic modules (rails, studs, clamp, etc.) to the mounting bases. The foundation on mounting structure would be pre-cast concrete or anchoring system. The mounting structure shall raise PV modules 1.4m high from the roof surface to the lowest edge of the PV module.

For installing the base of mounting structure, no drilling through roof's layers is preferred, if have to, the Contractor must discuss with and have approval from MoE administrator, to ensure there will be no impact to the waterproofing and strength of the roof.

Integration structures will be made of bolted aluminum alloy or hot-dip galvanized steel (welded structures are not permitted). In the case of galvanized steel structure, particular attention will be paid to the corrosion risk - Galvanization in accordance with ISO 14713-2:2009 standard. A new paint will be applied on all cuttings in accordance with ISO 12944-5 standard (average durability objective for C3 corrosivity in accordance with ISO 12944-2 standard).

Fasteners in stainless steel (minimum A4 class in accordance with ISO 3506 standard) in the case of an aluminum structure; fasteners in hot-dip galvanized steel in the case of a steel structure.

The Contractor shall choose the appropriate features and quality of the selected materials, according to the technological implementation conditions in the workshop or on site. These characteristics will be mentioned on the execution layouts of the structure.

The integration system may have to be validated by the insurance company of the building's owner. The Contractor will have to provide all the required documents and certificates.

The Contractor will be responsible for all the services necessary for the implementation of the solar system:

- Fixing of the aluminum profiles (rails, studs, clamps, etc.) required for the installation of the solar panels.
- All accessories between the cover and the solar collectors.
- All elements necessary for fastening (adhesive seal, gutter, flap, elements attaching the panels to each other, etc.)

All precautions shall be taken to ensure the free expansion of the panels.

16. ELECTRICAL WIRING:

16.1 Wires identification:

All electrical conduits will be marked to their ins and outs by locating rings adapted to external influences and environmental conditions. Writing solutions with ink will be rejected.

16.2 Connectors:

The connectors for the project shall comply with the following requirements:

- Compatible with the connection of photovoltaic modules according to IEC 62548;
- IEC 62852 compliant connectors
- Comply with EN 50521:2008;
- Rated voltage: 1000 V DC;
- Test voltage: 6KV (50Hz, 1 min);
- Contact resistance: < 0.5mOhm;
- Degree of protection: IP2X disconnected, IP 67 connected;
- Protection class: II;
- Temperature range: -30°C to 90°C;
- Max temperature: 120°C;
- TÜV certification for VDE 0126-3.

Chosen connectors shall be the product for outdoor uses, and be the compatible with the connectors of the PV modules and any connectors at the input of the inverters when they are directly connected to them.

In general, the connectors will be as unified as possible.

16.3 DC power solar cabling:

The DC cable for the project shall comply with the following requirements:

- Operating temperature: -40°C to +90°C
- Maximum temperature supported by the core: 120°C
- Maximum temperature on the core: 250°C when short-circuited (5 seconds)
- Voltage assigned: 0.6/1 kV A.C. - 0.9/1.5 kV DC.
- Maximum voltage: 1.2 kV A.C. - 1.8 kV DC.
- Test voltage: 6.5 kV A.C. - 15 kV DC in accordance with EN 50395 standard
- Flame retardant type C2 in accordance with IEC 60332-1 standard
- Smoke opacity in accordance with IEC 61034-2 standard (low emission of smoke)
- Combustion gases and smoke corrosivity in accordance with IEC 60754-1 and IEC 60754-2 standards (halogen-free)
- Resistance per unit length at 20°C in accordance with IEC 60228 standard
- Good UV-resistance: SEPAP testing during 500 hours at 60°C
- Aging 20000h at 120°C in accordance with IEC 60216 standard
- Resistance to oils and chemicals in accordance with IEC 60811-2-1 standard
- Flexible (class 5 of IEC 60228) to allow for thermal/wind movement of arrays/modules.

DC cable must be a solar-specified product and for outdoor uses. The choice of the cable sections will be justified by a calculation note.

16.4 AC power cabling:

AC cable for the project shall be in compliance with IEC 60502-1 standard

- Voltage assigned: 0.6/1 kV A.C
- Test voltage: 6KV (50Hz, 1 min)
- Protection class: II
- Temperature range: -30°C to 90°C

- Halogen free
- Flame retardant type C2 in accordance with IEC 60332-1 standard
- AD7 cables (cables resistant to immersion).

The choice of the cable sections will be justified by a calculation note.

16.5 Communication cabling:

Cables connecting the various sensors and auxiliary equipment shall comply with the specifications described in the equipment manufacturer's instructions. The cables shall withstand the applicable operating conditions and external influences. The cables will be systematically shielded and twisted in order to offer better resistance to electromagnetic disturbances.

- Shielded electric cable compatible with TIA-485-A standard
- Flame retardant type C2 in accordance with IEC 60332-1 standard
- Operating temperature up to 80°C

17. ELECTRICAL DUCTS AND CABLE TRAYS

17.1 Ducts:

Ducts and tubes will be made of white PVC. Outdoor parts shall be treated for external influences AN3.

17.2 Cable trays:

The cable trays used shall comply with the following requirements:

- Wire-type cable trays shall be made of hot-dip galvanized steel;
- Cable trays shall be protected by adapted metal covers (UV protection or mechanical cable protection). The covers shall be fixed with suitable fasteners (stainless steel clamps). Outside, the covers shall be wrapped around the cable trays by metal collars;
- Joints or other protection shall be installed in case of risk of contact between cables and sliced parts.
- Labelling on cable trays according to IEC 62548 and 60364.
- The width of the cable trays will limit the routing of three layers of conductors max in superposition
- Each cable tray will have a 30% reserve. The dimensional specifications will be made according to the characteristics of the cables (number, sections and type).



Cable trays shall be connected to the general ground of the building with equipotential connections every 15 meters to ensure a good physical and electrical continuity.

If the continuity of the cable trays is not possible, at the level of each splice, a bare or green / yellow copper braid shall connect the two segments of cable trays taken by the splice plate to guarantee equipotential bonding.

The cable trays shall be fixed regularly to their support (walls or roof in the technical cabinet, metal decks on the roof), according to implementation plan. The Contractor shall provide all suitable accessories for fixing the cable trays. The fixation of the cable trays on the steel decks of the roofs must not damage the waterproofing of the roof and impact plumbing/electrical systems of the building.

For all the cable runs and ducts, the Contractor shall provide the calculation notes guaranteeing the self-support of the ducts between two anchor points.

18. INVERTERS:

Inverter products shall be provided by the preferable manufacturers: SMA, TMEIC, Schneider, General electric, ABB, Sungrow.

18.1 Included parts:

Static 3 phase grid-connected inverter shall be equipped with:

- Permanent insulation controller in accordance with IEC 61557-8 standard: able to identify a 1st insulation fault and isolate the upstream circuits
- Circuit-breaker and isolating device shall be integrated to the inverter on DC side.
- Each DC input shall be protected against overcurrent by a fuse. The Contractor may have to provide and install an additional electrical cabinet to ensure this function or may propose specific in-line fuse holder to be directly connected to the inverter DC connectors ;
- Automatic disconnection device on AC side in the event of network dysfunction. Its main features will be as follows:
 - Disconnection = insulation (in terms of electrical safety)
 - Voltage disconnection range (for line-to-neutral voltage) outside the [180V ; 300V] range, in frequency outside the [45Hz ; 60Hz] range.

18.2 Technical specifications:

Operating characteristics of inverters shall be compliant with following requirements:

- Zero energy consumption (< 1W)
- Total harmonic distortion THD \leq 3%
- Nominal operating temperature up to 50°C
- AC output voltage: 50Hz / 400 V 3-phase

- Permissible input voltage $> 1.25 \times V_{oc}$ (open circuit voltage) of the modules strings with a cell temperature of 10°C
- Operating voltage range of the MPPT: Minimum voltage $< V_{mpp}$ (maximum power point voltage) with a cell temperature of 85°C; Maximum voltage $< V_{oc}$ of the strings with a cell temperature of 15°C
- Efficiency :
 - Maximum yield $> 97.5 \%$
 - European yield $> 97 \%$
- Envelope IP65 in accordance with IEC 60529 standard, adapted to exterior environment

18.3 Warranty:

The supplier warrants the supplied inverters for 5 years. The warranty covers:

- Remote assistance in the diagnosis of faults encountered;
- The cost of spare parts and/or new machines in the event of a breakdown requiring modifications or replacement of equipment;
- The manufacturer's repair work cost in the workshop;
- Updates to the internal management software of the inverter in case of need and/or evolution;
- The cost for sending spare parts or new machines from the manufacturer;
- Warranty of replacement equipment until the end of the initial warranty period;
- Initial operator training for inverter maintenance.

19. MAIN LOW-VOLTAGE PV Cabinet:

19.1 General specifications:

The low-voltage PV cabinet functions shall include:

- Paralleling of the inverter's AC output circuits and 3-phase connection and protection with a circuit-breaker of the AC circuits of each inverter;
- Surge protection device (lightning arrester);
- General circuit breaker of the PV system;
- Emergency shutdown of the PV system :
 - One dedicated emergency stop button to be installed on the electrical cabinet door
 - Emergency shutdown of the PV system connected to the general emergency shutdown of the building

- Automatic disconnection device of the PV system

The circuit breakers protecting each inverter circuit will be B-curve type, dimensioned for the maximum power supplied by the inverters. The cables will be dimensioned for permissible power (standards) and maximum voltage drop (as defined above).

The surge protection device features are:

- AC power
- $U_p < 3.6\text{kV}$
- $U_c > 400\text{V}$
- $U_t > 1.45 \times U_c$
- $I_n > 20\text{kA}$

The surge protection device of the PV installation will be coordinated with the general surge protection circuit and devices of the head office.

The general circuit breaker will be motor driven in order to be controlled by the automatic disconnection device, with the following characteristics:

- $4P I_n (\text{caliber}) = 400\text{A}$
- $I_{cu} (\text{breaking capacity}) = 50\text{kA}$
- Motor controlled by the automatic disconnection device

Characteristics of the automatic disconnection device:

- In compliance with the German DIN VDE 0126-1-1 standard
- **Adjustable** triggering level for the operator in ranges exceeding or equal to the following :
 - Current-carrying disconnection range (for line-to-neutral voltage) outside $[180\text{V} ; 300\text{V}]$ range
 - Frequency disconnection range outside $[45\text{Hz} ; 60\text{Hz}]$ range

The operating range (voltage, frequency) permitted by the automatic disconnection device shall be smaller than the operating range permitted by the inverters so that the automatic protection device prevails in disconnecting the PV system.

The emergency shutdown system shall comprise a push button lock, be accessible from outside the enclosure and protected against accidental operations by a protective collar. The emergency shutdown system of the PV system should also be connected to the general shutdown system of the head office.

LV PV cabinet shall be integrated with monitoring devices of the PV system, thus centralizing the monitoring data of the PV system. The data loggers shall also be grounded.

19.2 Casing:

General characteristics of the enclosure:

- Envelope IP 21 as a minimum

- Forced ventilation of the enclosure, supplied from an outgoing feeder protected by circuit breaker. The ventilation shall be activated at a threshold temperature. A temperature sensor will be installed outside the enclosure.

The casing of the cabinet shall be made of polyester reinforced with fiberglass, halogen-free, and shall have low flame spread characteristics. They shall have minimum IP 21 and IK10 protection. A lockable door shall be equipped.

The internal wiring shall be made of strand or trunking and should be connected to the terminal block. External conductors **must not** be connected directly to the switchgear.

The terminals and each internal wiring conductor shall be marked according to the diagrams.

The cables connected to the terminal block shall be suitably combed and have a loop. It should be available for using an amperometric clamp to measure the current on the power cables.

The marking shall be done by labels arranged on each control or protection device. The identification is identical to that shown on the diagrams. A second labeling by engraved dilophan labels, fixed on the chest plates or the cable chutes for the open chassis panels shall indicate the designation of the cables.

Cable entries shall be made by cable glands.

The envelopes shall include all the information required by the IEC 60 364 guide.

Once opened, boxes shall have IP2X protection, live bare parts shall be protected by translucent covers.

All of the internal metallic parts of the cabinet will be connected by Green/Yellow cables to a disconnection bar. It should be easily accessible for the external connection and will include a reservation for the connection of a 25mm² copper cables to the existing grounding network of the building.

19.3 PROTECTIONS, SECTIONERS, SWITCHES:

General specifications:

- B-curve circuit-breakers
- gG fuses
- Design of the cables and the protection in accordance with IEC 60 364 standard (current maximum permissible limit).
- Grounding layouts for alternative AC circuits: layout in accordance with IEC 60 364 standard and the existing BT installation
- Protection against direct contact: use of materials IP 2x as a minimum

Protection against indirect contact in DC circuits: use of class II (double insulation, conductor insulation) and implementation of an insulation monitoring device integrated into the inverter (or external, but close enough to the inverter: in that case, it must be controlled by the monitoring system).

All metallic equipment of the installation and the general grounding of the building shall be connected to have equal potential (connection to be provided at the connection point in the technical room).

19.4 Energy-meter:

The energy meter shall monitor the generated power by the PV system (active and reactive energy). The energy meter will have the following specifications:

- 4 dials : Active energy input / Active energy output / Reactive energy input / Reactive energy output
- Class 0.5s meter

20. DATA ACQUISITION AND MONITORING SYSTEM:

Data acquisition and monitoring system shall perform the following functions:

- Data acquisition: Measure all the operating parameters of the PV system with interval time of 10 minutes
- Data archiving on a data logger: Data storage capacity of minimum 30 days
- Data processing and editing for the maintenance staff
- Local data transmission to the general safety room's computer of the head office

Signal lamp next to the data logger (LV PV cabinet enclosure) when the general circuit breaker is open.

The data acquisition will be:

Data type	Data
Ambient conditions (from meteorological station)	Temperature on the modules underside
	Air temperature in shade
	Overall solar radiation in the horizontal plane and PV panel plan
State of the inverters	Current of each string
	DC functioning voltage
	State of DC insulation
	Alarm condition (in case of breakdowns)
	Alarm condition (in case of disconnection)
State of the system (except inverter)	State of the surge protection device in its enclosure and MSB PV
	State of the emergency shutdown system
	State of the automatic disconnection protection
	Energy generated by the PV system (active and reactive energy)

Characteristics of the data acquisition equipment and meteorology station:

Parameter	Measuring tool	Characteristics
Temperature on the modules underside	Temperature sensor	Pt100 Platinum Resistance Thermometer or similar
Air temperature in shade	Temperature sensor	Pt100 Platinum Resistance Thermometer or similar
Overall solar radiation in the horizontal plane	Pyranometer	Spectral range : 285 to 2800 nm Sensitivity: < 14 $\mu\text{V}/\text{W}/\text{m}^2$ Response time: < 5s Range: 0 < 7 W/m^2 Directional error: < 10 W/m^2 Temperature dependence of sensitivity: < 1% Operating temperature: up to 80°C
Current of each string	Inside the inverter	
DC functioning voltage	Inside the inverter	
State of DC insulation	Inside the inverter (Permanent insulation controller)	
Alarm condition (in case of breakdowns)	Inside the inverter	
Alarm condition (in case of disconnection)	Inside the inverter	
State of the surge protection device in its enclosure and MSB PV	Monitored surge protection device	
State of the emergency shutdown system	Acquisition on the emergency stop's circuit	
State of the automatic disconnection protection	Inside the automatic disconnection protection device	

A computer shall be installed to communicate with the data logger of each of the PV systems and for PV system operation purpose. A foldaway board will also be installed in each of the technical room near LV PV cabinet.

A software will be supplied for the on-site monitoring of the PV power system in a “user-friendly” way.

The computer characteristic will be the following:

- Laptop type
- 2.30 GHz processor

- 4GB memory DDR3
- 15.6" HD screen
- 500 GB Hard Drive

Alternative monitoring solutions could be proposed by the Contractor (cloud monitoring, etc.).

21. SUPPLY & INSTALLATION:

21.1 SOLAR PHOTOVOLTAIC MODULES:

The modules will have a per-unit peak power higher than or equal to 330Wp and efficiency above 16%. The Contractor will provide spare parts to mitigate the risk of any breakages.

Perforation in the modules frames shall be forbidden.

Implementation of the cables and fasteners will be conducted according to the general layout and execution studies provided in the proposal of the Contractor. Electrical architecture (choice of the number of modules connected in series in order to form strings, and connected in parallel to a same inverter) shall be completed as described in the transmitted layout and electrical diagram.

21.2 INVERTERS:

21.2.1 SUPPLY OF INVERTERS AND ASSOCIATED BOXES:

The inverters shall be specifically designed for converting photovoltaic electricity production connected and synchronized to the public distribution network by a delivery point. The scope of works shall integrate any necessary additional devices for proper functioning.

The selection of the modules/inverters association will be based on:

- Respect of the MPPT range as mentioned before (series/parallel architecture)
- Ratio between the power peak of the modules connected to the inverter and the inverter's permissible maximum input power - ranging between 0.85 and 1.05

For future maintainability reasons, only one type of inverter will be used for the whole PV system. Depending on the proposed configuration and total capacity by the Contractor, the quantity of the inverter can be proposed by the contractor.

- Per-unit power: 10 kVA.
- Per-building power: 50kVA (5 x 10 kVA)

21.2.2 INSTALLATION AND CONNECTION OF INVERTERS:

The scope of works includes the installation of the inverters and DC and AC disconnection boxes in the existing electrical room located on the fifth floor of the head office.

The scope of works includes installation of DC and AC connection cables, and connection to the communication bus. These cables will be protected by fixed cable trays.

The neutral mode will be defined during the execution study phase according to the existing neutral mode of the LV electrical system of the building.

21.2.3 STRINGS LINKS:

The scope of works includes the supply, installation and connection of solar extension cables between modules strings and inverters.

The cables cross-section should be larger than or equal to 6mm² in copper and secure connectors will be crimped to the ins and outs. The cables and connectors shall meet the requirements of the IEC 62548 standard.

The cables shall run in fixed cable trays along the PV fields on the rooftops to the electrical room. They shall be fixed together by collars and properly combed. Then, they shall run in cable trays or appropriate ducts in the technical room to the inverter inputs.

Adapted labeling shall be used for the pipes carrying these cables according to IEC 62548 and IEC 60364-7-712.

22. Roof safety measures:

Handrails are already built along the roof edge to secure future maintenance operations on the photovoltaic modules installed on the roof.

Stairs inside the building directly lead to the roofs. A caged ladder is an option to be discussed to allow quick and easy access to the roof.

23. SUPPORT STRUCTURE:

23.1 Supply & installation of the support structures:

The scope of works includes supply and installation of an integration system for the fastening of the PV modules on the roofs of the buildings.

Implementation shall meet the requirements from the manufacturer's instruction manual and the design calculation proving the stability of the structure.

Implementation tolerance: Limited to the maximum permissible constraints supported by the photovoltaic modules, such as those caused by some implementation uncertainties. The rails will be installed so that the flatness of the modules is assured.

The Contractor shall guarantee the mechanical strength of the whole structure with a design calculation.

The scope of works includes the displacement of all obstructing or interfering equipment in the zone of PV modules installation. This includes removal of the weather station in particular.

23.2 Frame and support structures grounding:

The frames of the modules shall be grounded. Depending on the structure integration system, the grounding of the module frames should be done either by suitable grounding devices to connect the frame to the support rails (which have been approved by an approved inspection office) or by implementing a specific grounding cable (25 mm² copper ground cable) network to be connected to grounding network of the cable trays. Fixing the rails on the breakdowns shall put them at the same electrical potential.

24. Electrical wiring:

24.1 Modules wiring:

The scope of works includes the connection of the modules in strings.

The connections between modules shall be fixed regularly to the rails or the module frames by means of a collar to prevent any mechanical degradation of the cables.

In order to limit the effects of lightning, the Contractor shall wire the photovoltaic modules together in order to minimize the loop induced by the active conductors, according to IEC 62-548 specifications.

The scope of works includes labeling of the cables at the plugged-in connectors. Labeling solutions will be designed for maximum durability.

24.2 Voltage drops:

Voltage drops shall be limited to:

- DC power circuits (of the module furthest away from the corresponding inverter): 1% voltage drops in Standard Test Conditions and in accordance with IEC 61215 standard
- AC power circuits (from each inverter until the connection point): 1% voltage drops in Standard Test Conditions and in accordance with IEC 61215 standard.

24.3 Inverters to main LV cabinet wiring:

The supply, installation and connection of the cables between the inverter boxes and LV PV cabinet and from LV PV cabinet to the electrical cabinet of the 5th floor are provided as well as all necessary accessories for the connection.

25. Electrical DUCTS:

The Contractor shall perform the supply and installation of:

- Cable trays for the cabling between the PV modules and the special device to cross the rooftop and waterproofness reconstruction (if any)
- All necessary accessories, subjection to enter the electrical room (perforation, duct, waterproofness)
- Cables trays or ducts for the cabling to and from the inverters inside the technical room
- Cable trays for the cabling between LV PV cabinet to the main cabinet of the 5th floor inside the technical room.

Every cutting shall be deburred and re-painted, in accordance with ISO 12944 standard.

The cable trays shall be fastened with roundhead screws in order not to damage the cables. The bolt shall always be outside the cable trays.

The spacing between the fasteners must respect the maximum load criteria of the cable tray in accordance with the manufacturer's instructions.

26. Low-Voltage PV cabinet:

26.1 General specifications:

The LV PV cabinet shall integrate 3 phase bus-bar for the connection of inverters, electrical protections, emergency stop devices, energy meter and arrivals of each field of PV arrays.

The dedicated cabinet will include:

- Head disconnecter for each PV inverters
- Differential circuit breakers for each inverter input.
- Power outlets
- Communication bus and weather station protections
- A surge arrester (type 2)
- Energy meter
- Monitoring devices (modem, data logger, data acquisition box, etc.)

The LV PV cabinet will be installed in the technical room of 5th floor.

26.2 Connection to the existing emergency stop:

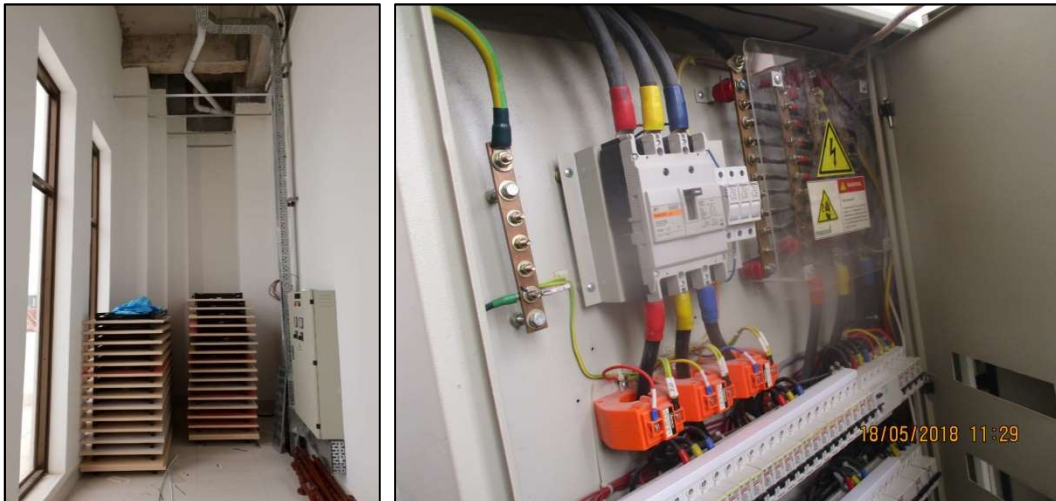
The proposed design of the Contractor shall include the connection of each of the LV PV cabinet to the emergency stop system of the building in order to be able to switch off the PV system in case of emergency or on the general LV electrical installation.

27. Connection to the existing electrical cabinet:

The Contractor shall connect the LV PV cabinet to the existing LV installation in the technical room of 5th floor. PV system will be connected in parallel with the power supply system of the 5th floor.

The scope of works shall include the provision and installation of new 3 phase head disconnectors and bus-bar in the existing electrical cabinets.

Before any work on the general LV board, make sure the power source is disconnected (complete insulation).



28. DATA ACQUISITION AND MONITORING SYSTEM:

28.1 COMMUNICATION BUS:

The supply, installation and connection of the communication bus cables shall be provided by the Contractor.

The equipment to be connected:

- Each string inverter
- Each controller connected to the weather sensors
- Control box of inverter and data acquisition boxes in the LV cabinet

The cables shall be installed to be close to the power cables without any physical contact (minimum distance of 2cm).

28.2 WEATHER SENSORS:

The Contractor shall supply and install a meteorological station, including:

- A pyranometer (accuracy of 2%) to be placed in the horizontal plane
- A temperature sensor (accuracy of 1K) to be placed in the shade of the modules
- A radiation probe (accuracy of 2%) to be placed in the plane of the modules
- A temperature probe (accuracy of 1K) to be fixed on the underside of a module

The sensors are supplied with:

- Compatible signal cables and signal amplifiers, if necessary, for connection to the acquisition device
- Enclosures integrating the acquisition and data transfer devices
- Support systems
- All other accessory if necessary

The work of Contractor shall include:

- Supply, installation and attachment of sensors to PV fields or other mounting elements, including any rail, profile, mounting hardware
- Supply, installation including fastening structure, and connection of PLC boxes: supply and chaining on the communication bus
- Supply and installation of the cabling from the meteorological station to installed monitoring data loggers in LV PV cabinet.

28.3 DATA ACQUISITION AND REMOTE TRANSMISSION:

The Contractor shall be in charge of supplying, installing and connecting of data acquisition system and a modem for remote data transmission. The scope of work of the Contractor includes opening an

ADSL line (or GPRS) and assistance in the commissioning of the remote transmission.

The choice between GPRS and ADSL for data remote transmission will have to be discussed with and approved by MoE administrator during the execution study phase.

28.4 PROVISION OF A SUPERVISION PLATFORM:

System information shall be provided in the form of tables, synoptics and graphs by the Contractor. The platform must provide general and detailed information about the various equipment of the PV system, regarding the electrical aspect as well as the system aspect. All information shall be retrievable in .csv format or equivalent (table). All quantities shall be represented on curves as a function of time. The scope of works includes the setup, commissioning of the platform and the cost of license and data hosting.

29. PERFORMANCE TESTS:

The contractor shall have to demonstrate the performance of the installed PV power system through a 15 days test period with a 100% availability of the system.

The measured Performance Ratio at the end of the 15 days will have to reach at least 95% of the corresponding monthly Performance Ratio announced by the contractor in the provided Yield estimation in the execution study phase and approved by MoE, UNDP and ARTELIA. ARTELIA, as a solar consultant, shall perform a quality check on the installed system based on the technical specifications and approved design of the Contractor.

If this performance goal is not achieved, the contractor will have to assume every modification in its installation that will be necessary to reach the expected performance. The payment for the Contractor shall be fully proceeded after the system being approved by MoE and UNDP. Potential additional costs will be entirely at the charge of the Contractor.

MINIMUM TECHNICAL REQUIREMENT:

#	Item	Minimum requirements	Supplier's Compliance to the Required Technical Specifications
1	PV modules:		
1.a	Model:	To be specified by the bidder	
1.b	Modules model and peak power	72 cells / Min 330 Wp	
1.c	Modules positive tolerance	0/+5 Wp	
1.d	Total number of modules	To be specified by the bidder	
1.e	Modules standards	IEC 60364-7-12, IEC 62548	
1.f	Module maximum voltage certification	To be specified by the bidder	
1.g	Peak power warranty after 20 years	Minimum 80% of nominal power	
1.h	Minimum efficiency of the module	16%	
1.i	Junction box protection	IP65	
1.j	Warranty time	At least 10 years	
2	DC connectors		
2.a	Connectors standard	Multi Contact 4 / Amphenol H4	
2.b	DC connector Model	To be specified by the bidder	
2.c	Standards	IEC 62548, IEC 62852 , EN 50521:2008, TÜV certification for VDE 0126-3	
2.d	Rated voltage	1000V DC	
2.e	Protection	IP2X disconnected, IP 67 connected, Class II	
2.f	Temperature range	-30°C to 90°C, max 120°C	
3	DC cables		
3.a	Operating temperature	-40°C to +90°C, max 120°C, 250°C when short-circuited (5 seconds)	
3.b	Voltage	1500V DC	
3.a	Resistance per unit length at 20°C	IEC 60228	
3.c	DC cables Model:	To be specified by the bidder, but only solar specified product allowed	

3.d	Combustion gases and smoke corrosivity	IEC 60754-1 and IEC 60754-2 standards (halogen-free)	
3.e	UV-resistance	SEPAP testing during 500 hours at 60°C	
3.f	Aging	20000h at 120°C in accordance with IEC 60216 standard	
3.g	Resistance to oils and chemicals	IEC 60811-2-1	
3.h	Flexibility	Class 5 of IEC 60228	
4	Inverters:		
4.a	Inverters Model:	Inverter products shall be provided by the preferable manufacturers: SMA, TMEIC, Schneider, General electric, ABB, Sungrow	
4.b	Total number of inverters	To be specified by the bidder	
4.c	Nominal inverter AC power at 25°C and 50°C (kVA)	10kVA	
4.e	Total inverter AC power at 25°C and 50°C (kVA)	50kVA	
4.f	Maximum outdoor temperature without derating (°C)	50°C	
4.g	Total harmonic distortion THD	≤3%	
4.h	Inverter class protection (IP)	IP65	
4.i	Inverter efficiency (%)	Maximum yield > 97.5%, European yield > 97%	
4.j	Self-consumption per inverter during operation at 25°C / during the night (kW)	< 1W	
4.k	Permissible input voltage	> 1.25 x Voc (open circuit voltage) of the modules strings with a cell temperature of 10°C	
5	AC cables		
5.a	Voltage assigned	0.6/1 kV A.C	
5.b	Protection class	Class II	
5.c	Temperature range	-30°C to 90°C	
5.d	Flame retardant	Type C2 in accordance with IEC 60332-1 standard	
5.e	Cables resistant to immersion	AD7	
5.f	DC cables vendor list	To be specified by the bidder	
6	Cable tray:		

6.a	Standards	IEC 61 537	
6.b	Protection	UV protection or mechanical cable protection	
7	Mounting structures:		
7.a	Material requirements	Bolted aluminum alloy or hot-dip galvanized steel	
7.b	Standards	ISO 14713-2:2009	
7.c	Tilt angle of the tables (°)	10°	
7.d	Table pitch (m)	5m	
7.e	Inter row space (m)	> 1 m	
7.f	Losses due to inter row shading, as per PVsyst (%)	To be specified by the bidder	
7.g	Distance between bottom edge and ground	min 1.40m	
7.h	Maximum wind speed considered for structure design	To be specified by the bidder with reference to site conditions and local standards	
7.i	Earthing of each row of tables : Y/N	Y / in accordance with local standards	
7.j	Equipotentiality : connection of each table to its neighbour : Y/N	Y / in accordance with local standards	
7.k	Coating of screw and bolts : Y/N	Y/ with special protection and in accordance with local standards	
8	Monitoring:		
8.a	Interval time for data collection	10min	
8.b	Data storage capacity	Minimum 30 days	
8.c	Monitoring level	Data from weather station, inverters, electrical system	
8.d	Monitoring solution	To be specified by the bidder	
8.e	Weather station	As per technical specification	
9	Operation and Maintenance:		
9.a	Number of cleaning per year quoted	To be specified by the bidder	
9.b	Cleaning solution specification (wet or dry + equipment specification)	To be specified by the bidder	
10	Guaranteed Performance Ratio		
10.a	Guaranteed Performance Ratio at Provisional Acceptance	> 95% of the provided PR (yield estimation study)	
10.b	PV system report provided	Y	

Section 3b: Related Services

Further to the Schedule of Requirements in the preceding Table, Bidders are requested to take note of the following additional requirements, conditions, and related services pertaining to the fulfillment of the requirements: *[check the condition that applies to this ITB, delete the entire row if condition is not applicable to the goods being procured]*

Delivery Term [INCOTERMS 2010] <i>(Pls. link this to price schedule)</i>	<input type="checkbox"/> FCA <input type="checkbox"/> CPT <input type="checkbox"/> CIP <input checked="" type="checkbox"/> DAP <input type="checkbox"/> DDP (Delivered Duty Paid)	
Exact Address of Delivery/Installation Location	UNDP Office	
Mode of Transport Preferred	<input checked="" type="checkbox"/> AIR	<input checked="" type="checkbox"/> LAND
	<input checked="" type="checkbox"/> SEA	<input type="checkbox"/> OTHER <i>[pls. specify]</i>
UNDP Preferred Freight Forwarder, if any ⁹	N/A	
Distribution of shipping documents <i>(if using freight forwarder)</i>	N/A	
Delivery Date	6 weeks after signing on the contract	
Customs, if needed, clearing shall be done by:	<input type="checkbox"/> UNDP <input checked="" type="checkbox"/> Supplier <input type="checkbox"/> Freight Forwarder The supporting letters will be provided by UNDP to selected contractor for processing custom clearance to import the goods.	
Ex-factory / Pre-shipment inspection	N/A	
Inspection upon delivery	Upon completion of Solar panels, the inspection will be conducted by UNDP solar consultant.	
Installation Requirements	Yes	
Testing Requirements	Yes	
Scope of Training on Operation and Maintenance	Yes	
Commissioning	Yes	
Technical Support Requirements	Yes	
Payment Terms <i>(max. advanced)</i>	<input checked="" type="checkbox"/> As per payment terms specified in ITB document	

⁹A factor of the Incoterms stipulated in the ITB. The use of a UNDP preferred courier may be considered for purposes of ensuring forwarder's familiarity with procedures and processing of documentary requirements applicable to UNDP when clearing with customs authority of the country of destination.

payment is 20% of total price as per UNDP policy)	
Conditions for Release of Payment	<input type="checkbox"/> Pre-shipment inspection <i>[pls. provide details]</i> <input type="checkbox"/> Inspection upon arrival at destination <i>[pls. provide details]</i> <input type="checkbox"/> Installation <i>[pls. provide details]</i> <input type="checkbox"/> Testing <i>[pls. provide details]</i> <input type="checkbox"/> Training on Operation and Maintenance <i>[pls. provide details]</i> <input checked="" type="checkbox"/> Written Acceptance of Goods based on full compliance with ITB requirements <input type="checkbox"/> Others <i>[pls. specify]</i>
After-sale services required	<input checked="" type="checkbox"/> Warranty on Parts and Labor for minimum period of Please refer to warranty requirement in section 3a. <input checked="" type="checkbox"/> Technical Support <input type="checkbox"/> Provision of Service Unit when pulled out for maintenance/repair <input type="checkbox"/> Others
All documentations, including catalogs, instructions and operating manuals, shall be in this language	<input checked="" type="checkbox"/> English <input type="checkbox"/> French <input type="checkbox"/> Spanish <input type="checkbox"/> Others <i>[pls. specify, including dialects, if needed]</i>

Section 4: Bid Submission Form¹⁰

(This should be written in the Letterhead of the Bidder. Except for indicated fields, no changes may be made in this template.)

Insert: Location

Insert: Date

To: [insert: Name and Address of UNDP focal point]

Dear Sir/Madam:

We, the undersigned, hereby offer to supply the goods and related services required for Supplying and installation of solar panels at MOE Office in accordance with your Invitation to Bid dated **June 28, 2018**. We are hereby submitting our Bid, which includes the Technical Bid and Price Schedule.

We hereby declare that:

- a) All the information and statements made in this Bid are true and we accept that any misrepresentation contained in it may lead to our disqualification;
- b) We are currently not on the removed or suspended vendor list of the UN or other such lists of other UN agencies, nor are we associated with, any company or individual appearing on the 1267/1989 list of the UN Security Council;
- c) We have no outstanding bankruptcy or pending litigation or any legal action that could impair our operation as a going concern; and
- d) We do not employ, nor anticipate employing, any person who is or was recently employed by the UN or UNDP.

We confirm that we have read, understood and hereby fully accept the Schedule of Requirements and Technical Specifications describing the duties and responsibilities required of us in this ITB, and the General Terms and Conditions of UNDP's Standard Contract for this ITB.

We agree to abide by this Bid for **120 days**.

We undertake, if our Bid is accepted, to initiate the supply of goods and provision of related services not later than the date indicated in the Data Sheet.

We fully understand and recognize that UNDP is not bound to accept this Bid, that we shall bear all costs associated with its preparation and submission, and that UNDP will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the evaluation.

¹⁰ No deletion or modification may be made in this form. Any such deletion or modification may lead to the rejection of the Bid.

We remain,

Yours sincerely,

Authorized Signature [*In full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Contact Details: _____

[Please mark this letter with your corporate seal, if available]

Section 5: Documents Establishing the Eligibility and Qualifications of the Bidder

Bidder Information Form¹¹

Date: *[insert date (as day, month and year) of Bid Submission]*

ITB No.: *[insert number of bidding process]*

Page _____ of _____ pages

1. Bidder's Legal Name <i>[insert Bidder's legal name]</i>		
2. In case of Joint Venture (JV), legal name of each party: <i>[insert legal name of each party in JV]</i>		
3. Actual or intended Country/ies of Registration/Operation: <i>[insert actual or intended Country of Registration]</i>		
4. Year of Registration in its Location: <i>[insert Bidder's year of registration]</i>		
5. Countries of Operation	6. No. of staff in each Country	7. Years of Operation in each Country
8. Legal Address/es in Country/ies of Registration/Operation: <i>[insert Bidder's legal address in country of registration]</i>		
9. Value and Description of Top three (3) Biggest Contract for the past three (3) years		
10. Latest Credit Rating (Score and Source, if any)		
11. Brief description of litigation history (disputes, arbitration, claims, etc.), indicating current status and outcomes, if already resolved.		
12. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>		
13. Are you in the UNPD List 1267.1989 or UN Ineligibility List? <input type="checkbox"/> YES or <input type="checkbox"/> NO		

¹¹ The Bidder shall fill in this Form in accordance with the instructions. Apart from providing additional information, no alterations to its format shall be permitted and no substitutions shall be accepted.

14. Attached are copies of original documents of:

- ☐ All eligibility document requirements listed in the Data Sheet
- ☐ If Joint Venture/Consortium – copy of the Memorandum of Understanding/Agreement or Letter of Intent to form a JV/Consortium, or Registration of JV/Consortium, if registered
- ☐ If case of Government corporation or Government-owned/controlled entity, documents establishing legal and financial autonomy and compliance with commercial law.

Joint Venture Partner Information Form (if Registered)¹²

Date: *[insert date (as day, month and year) of Bid Submission]*

ITB No.: *[insert number of bidding process]*

Page _____ of _____ pages

1. Bidder's Legal Name: <i>[insert Bidder's legal name]</i>		
2. JV's Party legal name: <i>[insert JV's Party legal name]</i>		
3. JV's Party Country of Registration: <i>[insert JV's Party country of registration]</i>		
4. Year of Registration: <i>[insert Party's year of registration]</i>		
5. Countries of Operation	6. No. of staff in each Country	7. Years of Operation in each Country
8. Legal Address/es in Country/ies of Registration/Operation: <i>[insert Party's legal address in country of registration]</i>		
9. Value and Description of Top three (3) Biggest Contract for the past three (3) years		
10. Latest Credit Rating (if any): Click here to enter text.		
1. Brief description of litigation history (disputes, arbitration, claims, etc.), indicating current status and outcomes, if already resolved. Click here to enter text.		

¹² The Bidder shall fill in this Form in accordance with the instructions. Apart from providing additional information, No alterations to its format shall be permitted and no substitutions shall be accepted.

13. JV's Party Authorized Representative Information

Name: *[insert name of JV's Party authorized representative]*

Address: *[insert address of JV's Party authorized representative]*

Telephone/Fax numbers: *[insert telephone/fax numbers of JV's Party authorized representative]*

Email Address: *[insert email address of JV's Party authorized representative]*

14. Attached are copies of original documents of: *[check the box(es) of the attached original documents]*

- ☐ All eligibility document requirements listed in the Data Sheet
- ☐ Articles of Incorporation or Registration of firm named in 2.
- ☐ In case of government owned entity, documents establishing legal and financial autonomy and compliance with commercial law.

Section 6: Technical Bid Form¹³

INSERT TITLE OF THE ITB

Name of Bidding Organization / Firm:	
Country of Registration:	
Name of Contact Person for this Bid:	
Address:	
Phone / Fax:	
Email:	

SECTION 1: EXPERTISE OF FIRM/ ORGANISATION

This section should fully explain the Bidder's resources in terms of personnel and facilities necessary for the performance of this requirement.

1.1 Brief Description of Bidder as an Entity: Provide a brief description of the organization / firm submitting the Bid, its legal mandates/authorized business activities, the year and country of incorporation, and approximate annual budget, etc. Include reference to reputation, or any history of litigation and arbitration in which the organisation / firm has been involved that could adversely affect or impact the delivery of goods and/or performance of related services, indicating the status/result of such litigation/arbitration.

1.2. Financial Capacity: Based on the latest Audited Financial Statement (Income Statement and Balance Sheet) describe the financial capacity (liquidity, stand-by credit lines, etc.) of the bidder to engage into the contract. Include any indication of credit rating, industry rating, etc.

1.3. Track Record and Experiences: Provide the following information regarding corporate experience within at least the last five (5) years which are related or relevant to those required for this Contract.

Name of project	Client	Contract Value	Period of activity	Types of activities undertaken	Status or Date Completed	References Contact Details (Name, Phone, Email)

¹³ Technical Bids not submitted in this format may be rejected.

SECTION 2 - SCOPE OF SUPPLY, TECHNICAL SPECIFICATIONS, AND RELATED SERVICES

This section should demonstrate the Bidder's responsiveness to the specification by identifying the specific components proposed, addressing the requirements, as specified, point by point; providing a detailed description of the essential performance characteristics proposed; and demonstrating how the proposed bid meets or exceeds the specifications.

2.1. Scope of Supply: Please provide a detailed description of the goods to be supplied, indicating clearly how they comply with the technical specifications required by the ITB (see below table); describe how the organisation/firm will supply the goods and any related services, keeping in mind the appropriateness to local conditions and project environment.

Item No.	Description/ Specification of Goods	Source/ Manufacturer	Country of Origin	Qty	Quality Certificate/ Export Licences, etc. (indicate all that applies and if attached)

A supporting document with full details may be annexed to this section

2.2. Technical Quality Assurance Mechanisms: The bid shall also include details of the Bidder's internal technical and quality assurance review mechanisms, all the appropriate quality certificates, export licenses and other documents attesting to the superiority of the quality of the goods and technologies to be supplied.

2.3. Reporting and Monitoring: Please provide a brief description of the mechanisms proposed for this project for reporting to the UNDP and partners, including a reporting schedule.

2.4. Subcontracting: Explain whether any work would be subcontracted, to whom, how much percentage of the work, the rationale for such, and the roles of the proposed sub-contractors. Special attention should be given to providing a clear picture of the role of each entity and how everyone will function as a team.

2.5. Risks / Mitigation Measures: Please describe the potential risks for the implementation of this project that may impact achievement and timely completion of expected results as well as their quality. Describe measures that will be put in place to mitigate these risks.

2.6 Implementation Timelines: The Bidder shall submit a Gantt Chart or Project Schedule indicating the detailed sequence of activities that will be undertaken and their corresponding timing.

2.7. Partnerships (Optional): Explain any partnerships with local, international or other organizations that are planned for the implementation of the project. Special attention should be given to providing a clear picture of the role of each entity and how everyone will function as a team. Letters of commitment from partners and an indication of whether some or all have successfully worked together on other previous projects is encouraged.

2.8. Anti-Corruption Strategy (Optional): Define the anti-corruption strategy that will be applied in this project to prevent the misuse of funds. Describe the financial controls that will be put in place.

2.9 Statement of Full Disclosure: This is intended to disclose any potential conflict in accordance with the definition of "conflict" under Section 4 of this document, if any.

2.10 Other: Any other comments or information regarding the bid and its implementation.

SECTION 3: PERSONNEL

3.1 Management Structure: Describe the overall management approach toward planning and implementing the contract. Include an organization chart for the management of the contract, if awarded.

3.2 Staff Time Allocation: Provide a spreadsheet will be included to show the activities of each personnel involved in the implementation of the contract. Where the expertise of the personnel is critical to the success of the contract, UNDP will not allow substitution of personnel whose qualifications had been reviewed and accepted during the bid evaluation. (If substitution of such a personnel is unavoidable, substitution or replacement will be subject to the approval of UNDP. No increase in costs will be considered as a result of any substitution).

3.3 Qualifications of Key Personnel. Provide the CVs for key personnel (Team Leader, Managerial and general staff) that will be provided to support the implementation of this project. CVs should demonstrate qualifications in area of expertise relevant to the Contract. Please use the format below:

Name:		
Role in Contract Implementation:		
Nationality:		
Contact information:		
Countries of Relevant Work Experience:		
Language Skills:		
Education and other Qualifications:		
Summary of Experience: <i>Highlight experience in the region and on similar projects.</i>		
Relevant Experience (From most recent):		
Period: From – To	Name of activity/ Project/ funding organisation, if applicable:	Job Title and Activities undertaken/Description of actual role performed:
<i>e.g. June 2010-January 2011</i>		
<i>Etc.</i>		
<i>Etc.</i>		
References (minimum of 3):	<i>Name</i> <i>Designation</i> <i>Organization</i> <i>Contact Information – Address; Phone; Email; etc.</i>	
Declaration:		
<p>I confirm my intention to serve in the stated position and present availability to serve for the term of the proposed contract. I also understand that any wilful misstatement described above may lead to my disqualification, before or during my engagement.</p> <p>_____</p> <p>_____</p> <p>Signature of the Nominated Team Leader/Member Date Signed</p>		

Section 7: Price Schedule Form¹⁴

The Bidder is required to prepare the Price Schedule as indicated in the Instruction to Bidders.

The Price Schedule must provide a detailed cost breakdown of all goods and related services to be provided, from unit price to lot prices. Separate figures must be provided for each functional grouping or category, if any.

The format shown on the following pages is suggested for use as a guide in preparing the Price Schedule.

Technical description	Unit	Qty	Price per element DAP-PP (USD)		Total price -DAP PP (USD)
			Supply	Erection	
Engineering analysis	set				
Executive studies					
Any additional studies and surveys (roof structure calculation, shading calculations, etc.)					
As built documentation					
Site facilities for construction and operation	set				
Safety & security during the works (storage area, roof protection, protective equipment, security marking, etc)					
Waste management					
Site cleaning during and after the work (and repairs if necessary)					
Support structure	set				
Mounting structure and all necessary equipment					
Support foundation					
Continuity of the waterproofing membrane					

¹⁴ No deletion or modification may be made in this form. Any such deletion or modification may lead to the rejection of the Bid.

Solar photovoltaic modules	kWp				
Inverters	kVA				
Electricity works	set				
Junction boxes (DC PV boards), AC boards, including supports, cabling and protections (fuses, circuit breakers, surge protection devices, emergency stop, etc)					
Wiring (DC, AC, grounding ,communication, etc)					
Cable trays					
Monitoring and data acquisition system	set				
Data acquisition and remote transmission system					
Weather station					
Display panel					
Testing and commissioning	set				
Grid connection					
No load and full load testing					
Performance Ratio testing					
O&M	set				
Operation and Maintenance of the PV system for FIRST YEAR					
Optional 5-year extension period of O&M					
O&M manual					
Administrative procedures	set				
Provide all necessary technical documents for the Owner to submit to EDC for compliance to national regulation on Solar					

Total Cost (DAP-Phnom Penh)	
-----------------------------	--

Dated this day of [year].

.....
Signature

.....
[in the capacity of]

Duly authorized to sign the Bid for and on behalf of

Section 8: FORM FOR BID SECURITY

(This must be finalized using the official letterhead of the Issuing Bank. Except for indicated fields, no changes may be made in this template.)

To: UNDP
[Insert contact information as provided in Data Sheet]

WHEREAS *[name and address of Contractor]* (hereinafter called “the Bidder”) has submitted a Bid to UNDP dated [Click here to enter a date.](#) , to deliver goods and execute related services for *[indicate ITB title]* (hereinafter called “the Bid”):

AND WHEREAS it has been stipulated by you that the Bidder shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security in the event that the Bidder:

- a) Fails to sign the Contract after UNDP has awarded it;
- b) Withdraws its Bid after the date of the opening of the Bid;
- c) Fails to comply with UNDP’s variation of requirement, as per ITB Section F.3; or
- d) Fails to furnish Performance Security, insurances, or other documents that UNDP may require as a condition to rendering the contract effective.

AND WHEREAS we have agreed to give the Bidder such this Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Bidder, up to a total of *[amount of guarantee]* *[in words and numbers]*, such sum being payable in the types and proportions of currencies in which the Price Bid is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of *[amount of guarantee as aforesaid]* without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

This guarantee shall be valid until 30 days after the date of validity of the bids.

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Date

Name of Bank

Address

Section 9: FORM FOR PERFORMANCE SECURITY¹⁵

(This must be finalized using the official letterhead of the Issuing Bank. Except for indicated fields, no changes may be made in this template.)

To: UNDP

[Insert contact information as provided in Data Sheet]

WHEREAS *[name and address of Contractor]* (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. Click to enter dated Click to enter , to deliver the goods and execute related services [Click here to enter text.](#) (hereinafter called “the Contract”):

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract:

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

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

This guarantee shall be valid until a date 30 days from the date of issue by UNDP of a certificate of satisfactory performance and full completion of services by the Contractor.

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Date

Name of Bank

Address

¹⁵ If the RFP requires the submission of a Performance Security, which shall be made a condition to the signing and effectivity of the contract, the Performance Security that the Bidder's Bank will issue shall use the contents of this template

Section 10: Form for Advanced Payment Guarantee¹⁶

(This must be finalized using the official letterhead of the Issuing Bank. Except for indicated fields, no changes may be made in this template.)

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

Beneficiary: _____ [Name and Address of UNDP]

Date: _____ ++++++

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that [name of Company] (hereinafter called "the Contractor") has entered into Contract No. [reference number of the contract] dated [insert: date] with you, for the provision of [brief description of ITB requirements] (hereinafter called "the Contract").

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

At the request of the Contractor, we [name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in words] ([amount in figures])¹⁷ upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor has used the advance payment for purposes other than toward providing the goods and related services under the Contract.

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

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of certified monthly statements which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of the monthly payment certificate indicating that the Consultants have made full repayment of the amount of the advance payment, or on the __ day of _____, 2__, 20__ whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

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

[signature(s)]

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

¹⁶ This Guarantee shall be required if the Contractor will require advanced payment of more than 20% of the contract amount, or if the absolute amount of the advanced payment required will exceed the amount of USD 30,000, or its equivalent if the price offer is not in USD, using the exchange rate stated in the Data Sheet. The Contractor's Bank must issue the Guarantee using the contents of this template.

¹⁷ The Guarantor Bank shall insert an amount representing the amount of the advanced payment and denominated either in the currency/ies of the advanced payment as specified in the Contract.

Section 11: Contract



**[PLEASE ATTACH HERETO THE .PDF VERSION OF THE CONTRACT THAT
WILL BE USED AND THE GENERAL TERMS AND CONDITIONS]**



Empowered lives.
Resilient nations.

Contract for Goods and/or Services
Between the United Nations Development Programme and [insert name of the Contractor]

1. Country Where Goods Will be Delivered and/or Services Will be Provided:	
2. UNDP <input type="checkbox"/> Request for Quotation <input type="checkbox"/> Request for Proposal <input type="checkbox"/> Invitation to Bid <input type="checkbox"/> direct contracting Number and Date:	
3. Contract Reference (e.g. Contract Award Number):	
4. Long Term Agreement: <input type="checkbox"/> Yes <input type="checkbox"/> No [indicate as appropriate]	
5. Subject Matter of the Contract: <input type="checkbox"/> goods <input type="checkbox"/> services <input type="checkbox"/> goods <i>and</i> services	
6. Type of Services:	
7. Contract Starting Date:	8. Contract Ending Date:
9. Total Contract Amount: [insert currency and amount in figures and words] 9a. Advance Payment: [insert currency and amount in figures and words or indicate “not applicable”]	
10. Total Value of Goods and/or Services: <input type="checkbox"/> below US\$50,000 (Services only) – UNDP General Terms and Conditions for Institutional (de minimis) Contracts apply <input type="checkbox"/> below US\$50,000 (Goods or Goods and Services) – UNDP General Terms and Conditions for Contracts apply <input type="checkbox"/> equal to or above US\$50,000 (Goods and/or Services) – UNDP General Terms and Conditions for Contracts apply	
11. Payment Method: <input type="checkbox"/> fixed price <input type="checkbox"/> cost reimbursement	
12. Contractor’s Name: Address: Country of incorporation: Website:	
13. Contractor’s Contact Person’s Name: Title: Address: Telephone number: Fax: Email:	
14. UNDP Contact Person’s Name: Title:	

Address:
Telephone number:
Fax:
Email:
15. Contractor's Bank Account to which payments will be transferred:
Beneficiary:
Account name:
Account number:
Bank name:
Bank address:
Bank SWIFT Code:
Bank Code:
Routing instructions for payments:

This Contract consists of the following documents, which in case of conflict shall take precedence over one another in the following order:

1. This face sheet ("Face Sheet").
2. UNDP Special Conditions [delete if not applicable].
3. [UNDP General Terms and Conditions for Contracts] [UNDP General Terms and Conditions for Institutional (de minimis) Contracts] [delete if not applicable and remove square brackets].
4. Terms of Reference (TORs) and Schedule of Payments, incorporating the description of services, deliverables and performance targets, time frames, schedule of payments, and total contract amount [delete if not applicable].
5. Technical Specifications for Goods [delete if not applicable].
6. The Contractor's Technical Proposal and Financial Proposal, dated [insert date], as clarified by the agreed minutes of the negotiations meeting, dated [insert date]; these documents not attached hereto but known to and in the possession of the Parties, and forming an integral part of this Contract.
7. Discount Prices [to be used in cases where the Contractor is engaged on the basis of an LTA; delete if not applicable].

All the above, hereby incorporated by reference, shall form the entire agreement between the Parties (the "Contract"), superseding the contents of any other negotiations and/or agreements, whether oral or in writing, pertaining to the subject of this Contract.

This Contract shall enter into force on the date of the last signature of the Face Sheet by the duly authorized representatives of the Parties, and terminate on the Contract Ending Date indicated on the Face Sheet. This Contract may be amended only by written agreement between the duly authorized representatives of the Parties.

IN WITNESS WHEREOF, the undersigned, being duly authorized thereto, have on behalf of the Parties hereto signed this Contract at the place and on the day set forth below.

For the Contractor		For UNDP	
Signature:		Signature:	
Name:		Name:	
Title:		Title:	

Date:		Date:	
-------	--	-------	--



*Empowered lives.
Resilient nations.*

GENERAL TERMS AND CONDITIONS FOR CONTRACTS

This Contract is between the United Nations Development Programme, a subsidiary organ of the United Nations established by the General Assembly of the United Nations (hereinafter “UNDP”), on the one hand, and a company or organization indicated in the Face Sheet of this Contract (hereinafter the “Contractor”), on the other hand.

1. LEGAL STATUS OF THE PARTIES: UNDP and the Contractor shall be referred to as a “Party” or, collectively, “Parties” hereunder, and:

1.1 Pursuant, *inter alia*, to the Charter of the United Nations and the Convention on the Privileges and Immunities of the United Nations, the United Nations, including its subsidiary organs, has full juridical personality and enjoys such privileges and immunities as are necessary for the independent fulfillment of its purposes.

1.2 The Contractor shall have the legal status of an independent contractor *vis-à-vis* UNDP, and nothing contained in or relating to the Contract shall be construed as establishing or creating between the Parties the relationship of employer and employee or of principal and agent. The officials, representatives, employees, or subcontractors of each of the Parties shall not be considered in any respect as being the employees or agents of the other Party, and each Party shall be solely responsible for all claims arising out of or relating to its engagement of such persons or entities.

2. OBLIGATIONS OF THE CONTRACTOR:

2.1 The Contractor shall deliver the goods described in the Technical Specifications for Goods (hereinafter the “Goods”) and/or perform and complete the services described in the Terms of Reference and Schedule of Payments (hereinafter the “Services”), with due diligence and efficiency, and in accordance with this Contract. The Contractor shall also provide all technical and administrative support needed in order to ensure the timely and satisfactory delivery of the Goods and/or performance of the Services.

2.2 To the extent that the Contract involves any purchase of the Goods, the Contractor shall provide UNDP with written evidence of the delivery of the Goods. Such evidence of delivery shall, at the minimum, consist of an invoice, a certification of conformity, and other supporting shipment documentation as may otherwise be specified in the Technical Specifications for Goods.

2.3 The Contractor represents and warrants the accuracy of any information or data provided to UNDP for the purpose of entering into this Contract, as well as the quality of the deliverables and reports foreseen under this Contract, in accordance with the highest industry and professional standards.

2.4 All time limits contained in this Contract shall be deemed to be of the essence in respect of the performance of the delivery of the Goods and/or the provision of the Services.

3. LONG TERM AGREEMENT: If the Contractor is engaged by UNDP on the basis of a long-term agreement (“LTA”) as indicated in the Face Sheet of this Contract, the following conditions shall apply:

3.1 UNDP does not warrant that any quantity of Goods and/or Services shall be ordered during the term of the LTA.

3.2 Any UNDP business unit, including, but not limited to, a Headquarters unit, a Country Office or a Regional Centre, as well as any United Nations entity, may benefit from the retainer and order Goods and/or Services from the Contractor hereunder.

3.3 The Contractor shall provide the Services and/or deliver the Goods, as and when requested by UNDP and reflected in a Purchase Order, which shall be subject to the terms and conditions stipulated in this Contract. For the avoidance of doubt, UNDP shall acquire no legal obligations towards the Contractor unless and until a Purchase Order is issued.

3.4 The Goods and/or Services shall be at the Discount Prices annexed hereto. The prices shall remain in effect for a period of three years from the Starting Date stated in the Face Sheet of this Contract.

3.5 In the event of any advantageous technical changes and/or downward pricing of the Goods and/or Services during the term of the retainer, the Contractor shall notify UNDP immediately. UNDP shall consider the impact of any such event and may request an amendment to the retainer.

3.6 The Contractor shall report semi-annually to UNDP on the Goods delivered and/or Services provided, unless otherwise specified in the Contract. Each report should be submitted to the UNDP Contact Person indicated in as indicated in the Face Sheet hereto, as well as to a UNDP business unit that has placed a Purchase Order for the Goods and/or Services during the reporting period.

3.7 The LTA shall remain in force for the maximum period of two years and may be extended by UNDP for one additional year by mutual agreement of the Parties.

4. PRICE AND PAYMENT:

4.1 FIXED PRICE: If Fixed Price is chosen as a payment method pursuant to the Face Sheet of this Contract, in full consideration for the complete and satisfactory delivery of the Goods and/or provision of the Services, UNDP shall pay the Contractor a fixed amount indicated in the Face Sheet of this Contract.

4.1.1 The amount stated in the Face Sheet of this Contract is not subject to any adjustment or revision because of price or currency fluctuations, or the actual costs incurred by the Contractor in the performance of the Contract.

4.1.2 UNDP shall effect payments to the Contractor in the amounts and pursuant to the schedule of payments set forth in the Terms of Reference and Schedule of Payments, upon completion by the Contractor of the corresponding deliverable(s) and upon acceptance by UNDP of the original invoices submitted by the Contractor to the UNDP Contact Person indicated in the Face Sheet of this Contract, together with whatever supporting documentation that may be required by UNDP:

4.1.3 Invoices shall indicate a deliverable completed and the corresponding amount payable.

4.1.4 Payments effected by UNDP to the Contractor shall be deemed neither to relieve the Contractor of its obligations under this Contract nor as acceptance by UNDP of the Contractor's delivery of the Goods and/or provision of the Services.

4.2 COST REIMBURSEMENT: If Cost Reimbursement is chosen as a payment method pursuant to the Face Sheet of this Contract, in full consideration for the complete and satisfactory delivery of the Goods and/or provision of the Services under this Contract, UNDP shall pay the Contractor an amount not exceeding the total amount stated in the Face Sheet of this Contract.

4.2.1 The said amount is the maximum total amount of reimbursable costs under this Contract. The breakdown of costs contained in the Financial Proposal, referred to in the Face Sheet to this Contract shall specify the maximum amount per each cost category that is reimbursable under this Contract. The Contractor shall specify in its invoices or financial reports (as required by UNDP) the amount of the actual reimbursable costs incurred in the delivery of the Goods and/or the provision of the Services.

4.2.2 The Contractor shall not provide the Services and/or deliver the Goods or equipment, materials and supplies that may result in any costs in excess of the amount stated in the Face Sheet of this Contract, or of the maximum amount per each cost category specified in the breakdown of costs contained in the Financial Proposal, without the prior written agreement of the UNDP Contact Person.

4.2.3 The Contractor shall submit original invoices or financial reports (as required by UNDP) for the Goods delivered in accordance with the Technical Specifications for Goods and/or the Services provided in accordance with the schedule set forth in the Terms of Reference and Schedule of Payments. Such invoices or financial reports shall indicate a deliverable or deliverables completed and the corresponding amount payable. They shall be submitted to the UNDP Contact Person, together with whatever supporting documentation of the actual costs incurred that is required in the Financial Proposal, or may be required by UNDP.

4.2.4 UNDP shall effect payments to the Contractor upon completion by the Contractor of the deliverable(s) indicated in the original invoices or financial reports (as required by UNDP) and upon acceptance of these invoices or financial reports by UNDP. Such payments shall be subject to any specific conditions for reimbursement specified in the breakdown of costs contained in the Financial Proposal.

4.2.5 Payments effected by UNDP to the Contractor shall be deemed neither to relieve the Contractor of its obligations under this Contract nor as acceptance by UNDP of the Contractor's delivery of the Goods and/or performance of the Services.

5. ADVANCE PAYMENT:

5.1 If an advance payment is due to the Contractor pursuant to the Face Sheet of this Contract, the Contractor shall submit an original invoice for the amount of that advance payment upon signature of this Contract by the Parties.

5.2 If an advance payment representing 20% or more of the total contract value, or amounting to US\$30,000 or more, is to be made by UNDP upon signature of the Contract by the Parties, such payment shall be contingent upon receipt and acceptance by UNDP of a bank guarantee or a certified cheque for the full amount of the advance payment, valid for the duration of the Contract, and in a form acceptable to UNDP.

6. SUBMISSION OF INVOICES AND REPORTS:

6.1 All original invoices, financial reports and any other reports and supporting documentation required under this Contract shall be submitted by mail by the Contractor to UNDP Contact Person. Upon

request of the Contractor, and subject to approval by UNDP, invoices and financial reports may be submitted to UNDP by fax or email.

6.2 All reports and invoices shall be submitted by the Contractor to the UNDP Contact Person specified in the Face Sheet of this Contract.

7. TIME AND MANNER OF PAYMENT:

7.1 Invoices shall be paid within thirty (30) days of the date of their acceptance by UNDP. UNDP shall make every effort to accept an original invoice or advise the Contractor of its non-acceptance within a reasonable time from receipt.

7.2 Where the Services are to be provided, in addition to an invoice, the Contractor shall submit to UNDP a report, describing in detail the Services provided under the Contract during the period of time covered in each report.

8. RESPONSIBILITY FOR EMPLOYEES: To the extent that the Contract involves the provision of the Services to UNDP by the Contractor's officials, employees, agents, servants, subcontractors and other representatives (collectively, the Contractor's "personnel"), the following provisions shall apply:

8.1 The Contractor is responsible for and shall assume all risk and liabilities relating to its personnel and property.

8.2 The Contractor shall be responsible for the professional and technical competence of the personnel it assigns to perform work under the Contract and will select reliable and competent individuals who will be able to effectively perform the obligations under the Contract and who, while doing so, will respect the local laws and customs and conform to a high standard of moral and ethical conduct.

8.3 Such Contractor personnel shall be professionally qualified and, if required to work with officials or staff of UNDP, shall be able to do so effectively. The qualifications of any personnel whom the Contractor may assign or may propose to assign to perform any obligations under the Contract shall be substantially the same, or better, as the qualifications of any personnel originally proposed by the Contractor.

8.4 At the option of and in the sole discretion of UNDP:

8.4.1 the qualifications of personnel proposed by the Contractor (*e.g.*, a curriculum vitae) may be reviewed by UNDP prior to such personnel's performing any obligations under the Contract;

8.4.2 any personnel proposed by the Contractor to perform obligations under the Contract may be interviewed by qualified staff or officials of UNDP prior to such personnel's performing any obligations under the Contract; and,

8.4.3 in cases in which, pursuant to Article 8.4.1 or 8.4.2, above, UNDP has reviewed the qualifications of such Contractor's personnel, UNDP may reasonably refuse to accept any such personnel.

8.5 Requirements specified in the Contract regarding the number or qualifications of the Contractor's personnel may change during the course of performance of the Contract. Any such change shall be made only following written notice of such proposed change and upon written agreement between the Parties regarding such change, subject to the following:

8.5.1 UNDP may, at any time, request, in writing, the withdrawal or replacement of any of the Contractor's personnel, and such request shall not be unreasonably refused by the Contractor.

8.5.2 Any of the Contractor's personnel assigned to perform obligations under the Contract shall not be withdrawn or replaced without the prior written consent of UNDP, which shall not be unreasonably withheld.

8.5.3 The withdrawal or replacement of the Contractor's personnel shall be carried out as quickly as possible and in a manner that will not adversely affect the performance of obligations under the Contract.

8.5.4 All expenses related to the withdrawal or replacement of the Contractor's personnel shall, in all cases, be borne exclusively by the Contractor.

8.5.5 Any request by UNDP for the withdrawal or replacement of the Contractor's personnel shall not be considered to be a termination, in whole or in part, of the Contract, and UNDP shall not bear any liability in respect of such withdrawn or replaced personnel.

8.5.6 If a request for the withdrawal or replacement of the Contractor's personnel is *not* based upon a default by or failure on the part of the Contractor to perform its obligations in accordance with the Contract, the misconduct of the personnel, or the inability of such personnel to reasonably work together with UNDP officials and staff, then the Contractor shall not be liable by reason of any such request for the withdrawal or replacement of the Contractor's personnel for any delay in the performance by the Contractor of its obligations under the Contract that is substantially the result of such personnel's being withdrawn or replaced.

8.6 Nothing in Articles 8.3, 8.4 and 8.5, above, shall be construed to create any obligations on the part of UNDP with respect to the Contractor's personnel assigned to perform work under the Contract, and such personnel shall remain the sole responsibility of the Contractor.

8.7 The Contractor shall be responsible for requiring that all personnel assigned by it to perform any obligations under the Contract and who may have access to any premises or other property of UNDP shall:

8.7.1 undergo or comply with security screening requirements made known to the Contractor by UNDP, including but not limited to, a review of any criminal history;

8.7.2 when within UNDP premises or on UNDP property, display such identification as may be approved and furnished by UNDP security officials, and that upon the withdrawal or replacement of any such personnel or upon termination or completion of the Contract, such personnel shall immediately return any such identification to UNDP for cancellation.

8.8 Within one working day after learning that any of Contractor's personnel who have access to any UNDP premises have been charged by law enforcement authorities with an offense other than a minor traffic offense, the Contractor shall provide written notice to inform UNDP about the particulars of the charges then known and shall continue to inform UNDP concerning all substantial developments regarding the disposition of such charges.

8.9 All operations of the Contractor, including without limitation, storage of equipment, materials, supplies and parts, within UNDP premises or on UNDP property shall be confined to areas authorized or approved by UNDP. The Contractor's personnel shall not enter or pass through and shall not store or dispose of any of its equipment or materials in any areas within UNDP premises or on UNDP property without appropriate authorization from UNDP.

8.10 The Contractor shall (i) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the Services are being provided; and (ii) assume all risks and liabilities related to the Contractor's security, and the full implementation of the security plan.

8.11 UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this contract. Notwithstanding the foregoing, the Contractor shall remain solely responsible for the security of its personnel and for UNDP's property in its custody as set forth in paragraph 8.10 above.

9. ASSIGNMENT:

9.1 Except as provided in Article 9.2, below, the Contractor may not assign, transfer, pledge or make any other disposition of the Contract, of any part of the Contract, or of any of the rights, claims or obligations under the Contract except with the prior written authorization of UNDP. Any such unauthorized assignment, transfer, pledge or other disposition, or any attempt to do so, shall not be binding on UNDP. Except as permitted with respect to any approved subcontractors, the Contractor shall not delegate any of its obligations under this Contract, except with the prior written consent of UNDP. Any such unauthorized delegation, or attempt to do so, shall not be binding on UNDP.

9.2 The Contractor may assign or otherwise transfer the Contract to the surviving entity resulting from a reorganization of the Contractor's operations, *provided that*:

9.2.1 such reorganization is not the result of any bankruptcy, receivership or other similar proceedings; *and*,

9.2.2 such reorganization arises from a sale, merger, or acquisition of all or substantially all of the Contractor's assets or ownership interests; *and*,

9.2.3 the Contractor promptly notifies UNDP about such assignment or transfer at the earliest opportunity; *and*,

9.2.4 the assignee or transferee agrees in writing to be bound by all of the terms and conditions of the Contract, and such writing is promptly provided to UNDP following the assignment or transfer.

10. SUBCONTRACTING: In the event that the Contractor requires the services of subcontractors to perform any obligations under the Contract, the Contractor shall obtain the prior written approval of UNDP. UNDP shall be entitled, in its sole discretion, to review the qualifications of any subcontractors and to reject any proposed subcontractor that UNDP reasonably considers is not qualified to perform obligations under the Contract. UNDP shall have the right to require any subcontractor's removal from UNDP premises without having to give any justification therefor. Any such rejection or request for removal shall not, in and of itself, entitle the Contractor to claim any delays in the performance, or to assert any excuses for the non-performance, of any of its obligations under the Contract, and the Contractor shall be solely responsible for all services and obligations performed by its subcontractors. The terms of any subcontract shall be subject to, and shall be construed in a manner that is fully in accordance with, all of the terms and conditions of the Contract.

11. PURCHASE OF GOODS: To the extent that the Contract involves any purchase of the Goods, whether in whole or in part, and unless specifically stated otherwise in the Contract, the following conditions shall apply to such purchases under the Contract:

11.1 DELIVERY OF GOODS: The Contractor shall hand over or make available the Goods, and UNDP shall receive the Goods, at the place for the delivery of the Goods and within the time for delivery of the Goods specified in the Contract. The Contractor shall provide to UNDP such shipment documentation (including, without limitation, bills of lading, airway bills, and commercial invoices) as are specified in the Contract or, otherwise, as are customarily utilized in the trade. All manuals, instructions, displays and any other information relevant to the Goods shall be in the English language unless otherwise specified in the Contract. Unless otherwise stated in the Contract (including, but not limited to, in any "INCOTERM" or similar trade term), the entire risk of loss,

damage to, or destruction of the Goods shall be borne exclusively by the Contractor until physical delivery of the Goods to UNDP in accordance with the terms of the Contract. Delivery of the Goods shall not be deemed in itself as constituting acceptance of the Goods by UNDP.

11.2 INSPECTION OF THE GOODS: If the Contract provides that the Goods may be inspected prior to delivery, the Contractor shall notify UNDP when the Goods are ready for pre-delivery inspection. Notwithstanding any pre-delivery inspection, UNDP or its designated inspection agents may also inspect the Goods upon delivery in order to confirm that the Goods conform to applicable specifications or other requirements of the Contract. All reasonable facilities and assistance, including, but not limited to, access to drawings and production data, shall be furnished to UNDP or its designated inspection agents at no charge therefor. Neither the carrying out of any inspections of the Goods nor any failure to undertake any such inspections shall relieve the Contractor of any of its warranties or the performance of any obligations under the Contract.

11.3 PACKAGING OF THE GOODS: The Contractor shall package the Goods for delivery in accordance with the highest standards of export packaging for the type and quantities and modes of transport of the Goods. The Goods shall be packed and marked in a proper manner in accordance with the instructions stipulated in the Contract or, otherwise, as customarily done in the trade, and in accordance with any requirements imposed by applicable law or by the transporters and manufacturers of the Goods. The packing, in particular, shall mark the Contract or Purchase Order number and any other identification information provided by UNDP as well as such other information as is necessary for the correct handling and safe delivery of the Goods. Unless otherwise specified in the Contract, the Contractor shall have no right to any return of the packing materials.

11.4 TRANSPORTATION & FREIGHT: Unless otherwise specified in the Contract (including, but not limited to, in any “INCOTERM” or similar trade term), the Contractor shall be solely liable for making all transport arrangements and for payment of freight and insurance costs for the shipment and delivery of the Goods in accordance with the requirements of the Contract. The Contractor shall ensure that UNDP receives all necessary transport documents in a timely manner so as to enable UNDP to take delivery of the Goods in accordance with the requirements of the Contract.

11.5 WARRANTIES: Unless otherwise specified in the Contract, in addition to and without limiting any other warranties, remedies or rights of UNDP stated in or arising under the Contract, the Contractor warrants and represents that:

11.5.1 The Goods, including all packaging and packing thereof, conform to the technical specifications, are fit for the purposes for which such Goods are ordinarily used and for any purposes expressly made known in writing in the Contract, and shall be of even quality, free from faults and defects in design, material, manufacturer and workmanship;

11.5.2 If the Contractor is not the original manufacturer of the Goods, the Contractor shall provide UNDP with the benefit of all manufacturers’ warranties in addition to any other warranties required to be provided under the Contract;

11.5.3 The Goods are of the quality, quantity and description required by the Contract, including when subjected to conditions prevailing in the place of final destination;

11.5.4 The Goods are free from any right of claim by any third-party, including claims of infringement of any intellectual property rights, including, but not limited to, patents, copyright and trade secrets;

11.5.5 The Goods are new and unused;

11.5.6 All warranties will remain fully valid following any delivery of the Goods and for a period of not less than one (1) year following acceptance of the Goods by UNDP in accordance with the Contract;

11.5.7 During any period in which the Contractor's warranties are effective, upon notice by UNDP that the Goods do not conform to the requirements of the Contract, the Contractor shall promptly and at its own expense correct such non-conformities or, in case of its inability to do so, replace the defective Goods with Goods of the same or better quality or, at its own cost, remove the defective Goods and fully reimburse UNDP for the purchase price paid for the defective Goods; and,

11.5.8 The Contractor shall remain responsive to the needs of UNDP for any services that may be required in connection with any of the Contractor's warranties under the Contract.

11.6 ACCEPTANCE OF GOODS: Under no circumstances shall UNDP be required to accept any Goods that do not conform to the specifications or requirements of the Contract. UNDP may condition its acceptance of the Goods upon the successful completion of acceptance tests as may be specified in the Contract or otherwise agreed in writing by the Parties. In no case shall UNDP be obligated to accept any Goods unless and until UNDP has had a reasonable opportunity to inspect the Goods following delivery. If the Contract specifies that UNDP shall provide a written acceptance of the Goods, the Goods shall not be deemed accepted unless and until UNDP in fact provides such written acceptance. In no case shall payment by UNDP in and of itself constitute acceptance of the Goods.

11.7 REJECTION OF GOODS: Notwithstanding any other rights of, or remedies available to UNDP under the Contract, in case any of the Goods are defective or otherwise do not conform to the specifications or other requirements of the Contract, UNDP, at its sole option, may reject or refuse to accept the Goods, and within thirty (30) days following receipt of notice from UNDP of such rejection or refusal to accept the Goods, the Contractor shall, in sole option of UNDP:

11.7.1 provide a full refund upon return of the Goods, or a partial refund upon a return of a portion of the Goods, by UNDP; *or*,

11.7.2 repair the Goods in a manner that would enable the Goods to conform to the specifications or other requirements of the Contract; *or*,

11.7.3 replace the Goods with Goods of equal or better quality; *and*,

11.7.4 pay all costs relating to the repair or return of the defective Goods as well as the costs relating to the storage of any such defective Goods and for the delivery of any replacement Goods to UNDP.

11.8 In the event that UNDP elects to return any of the Goods for the reasons specified in Article 11.7, above, UNDP may procure the Goods from another source. In addition to any other rights or remedies available to UNDP under the Contract, including, but not limited to, the right to terminate the Contract, the Contractor shall be liable for any additional cost beyond the balance of the Contract price resulting from any such procurement, including, *inter alia*, the costs of engaging in such procurement, and UNDP shall be entitled to compensation from the Contractor for any reasonable expenses incurred for preserving and storing the Goods for the Contractor's account.

11.9 TITLE: The Contractor warrants and represents that the Goods delivered under the Contract are unencumbered by any third party's title or other property rights, including, but not limited to, any liens or security interests. Unless otherwise expressly provided in the Contract, title in and to the Goods shall pass from the Contractor to UNDP upon delivery of the Goods and their acceptance by UNDP in accordance with the requirements of the Contract.

11.10 EXPORT LICENSING: The Contractor shall be responsible for obtaining any export license required with respect to the Goods, products, or technologies, including software, sold, delivered, licensed or otherwise provided to UNDP under the Contract. The Contractor shall procure any such export license in an expeditious manner. Subject to and without any waiver of the privileges and immunities of UNDP, UNDP shall lend the Contractor all reasonable assistance required for obtaining any such export license. Should any Governmental entity refuse, delay or hinder the Contractor's ability to obtain any such export license, the Contractor shall promptly consult with UNDP to enable UNDP to take appropriate measures to resolve the matter.

12. INDEMNIFICATION:

12.1 The Contractor shall indemnify, defend, and hold and save harmless, UNDP, and its officials, agents and employees, from and against all suits, proceedings, claims, demands, losses and liability of any kind or nature brought by any third party against UNDP, including, but not limited to, all litigation costs and expenses, attorney's fees, settlement payments and damages, based on, arising from, or relating to:

12.1.1 allegations or claims that the possession of or use by UNDP of any patented device, any copyrighted material, or any other goods, property or services provided or licensed to UNDP under the terms of the Contract, in whole or in part, separately or in a combination contemplated by the Contractor's published specifications therefor, or otherwise specifically approved by the Contractor, constitutes an infringement of any patent, copyright, trademark, or other intellectual property right of any third party; *or*,

12.1.2 any acts or omissions of the Contractor, or of any subcontractor or anyone directly or indirectly employed by them in the performance of the Contract, which give rise to legal liability to anyone not a party to the Contract, including, without limitation, claims and liability in the nature of a claim for workers' compensation.

12.2 The indemnity set forth in Article 12.1.1, above, shall not apply to:

12.2.1 A claim of infringement resulting from the Contractor's compliance with specific written instructions by UNDP directing a change in the specifications for the goods, property, materials, equipment or supplies to be or used, or directing a manner of performance of the Contract or requiring the use of specifications not normally used by the Contractor; *or*

12.2.2 A claim of infringement resulting from additions to or changes in any goods, property, materials equipment, supplies or any components thereof furnished under the Contract if UNDP or another party acting under the direction of UNDP made such changes.

12.3 In addition to the indemnity obligations set forth in this Article 12, the Contractor shall be obligated, at its sole expense, to defend UNDP and its officials, agents and employees, pursuant to this Article 12, regardless of whether the suits, proceedings, claims and demands in question actually give rise to or otherwise result in any loss or liability.

12.4 UNDP shall advise the Contractor about any such suits, proceedings, claims, demands, losses or liability within a reasonable period of time after having received actual notice thereof. The Contractor shall have sole control of the defense of any such suit, proceeding, claim or demand and of all negotiations in connection with the settlement or compromise thereof, except with respect to the assertion or defense of the privileges and immunities of UNDP or any matter relating thereto, for which only UNDP itself is authorized to assert and maintain. UNDP shall have the right, at its own expense, to be represented in any such suit, proceeding, claim or demand by independent counsel of its own choosing.

12.5 In the event the use by UNDP of any Goods, property or Services provided or licensed to UNDP by the Contractor, in whole or in part, in any suit or proceeding, is for any reason enjoined, temporarily or permanently, or is found to infringe any patent, copyright, trademark or other intellectual property right, or in the event of a settlement, is enjoined, limited or otherwise interfered with, then the Contractor, at its sole cost and expense, shall, promptly, either:

12.5.1 procure for UNDP the unrestricted right to continue using such Goods or Services provided to UNDP;

12.5.2 replace or modify the Goods and/or or Services provided to UNDP, or part thereof, with the equivalent or better Goods and/or Services, or part thereof, that is non-infringing; *or*,

12.5.3 refund to UNDP the full price paid by UNDP for the right to have or use such Goods, property or Services, or part thereof.

13. INSURANCE AND LIABILITY:

13.1 The Contractor shall pay UNDP promptly for all loss, destruction, or damage to the property of UNDP caused by the Contractor's personnel or by any of its subcontractors or anyone else directly or indirectly employed by the Contractor or any of its subcontractors in the performance of the Contract.

13.2 Unless otherwise provided in the Contract, prior to commencement of performance of any other obligations under the Contract, and subject to any limits set forth in the Contract, the Contractor shall take out and shall maintain for the entire term of the Contract, for any extension thereof, and for a period following any termination of the Contract reasonably adequate to deal with losses:

13.2.1 insurance against all risks in respect of its property and any equipment used for the performance of the Contract;

13.2.2 workers' compensation insurance, or its equivalent, or employer's liability insurance, or its equivalent, with respect to the Contractor's personnel sufficient to cover all claims for injury, death and disability, or any other benefits required to be paid by law, in connection with the performance of the Contract;

13.2.3 liability insurance in an adequate amount to cover all claims, including, but not limited to, claims for death and bodily injury, products and completed operations liability, loss of or damage to property, and personal and advertising injury, arising from or in connection with the Contractor's performance under the Contract, including, but not limited to, liability arising out of or in connection with the acts or omissions of the Contractor, its personnel, agents, or invitees, or the use, during the performance of the Contract, of any vehicles, boats, airplanes or other transportation vehicles and equipment, whether or not owned by the Contractor; *and*,

13.2.4 such other insurance as may be agreed upon in writing between UNDP and the Contractor.

13.3 The Contractor's liability policies shall also cover subcontractors and all defense costs and shall contain a standard "cross liability" clause.

13.4 The Contractor acknowledges and agrees that UNDP accepts no responsibility for providing life, health, accident, travel or any other insurance coverage which may be necessary or desirable in respect of any personnel performing services for the Contractor in connection with the Contract.

13.5 Except for the workers' compensation insurance or any self-insurance program maintained by the Contractor and approved by UNDP, in its sole discretion, for purposes of fulfilling the Contractor's requirements for providing insurance under the Contract, the insurance policies required under the Contract shall:

13.5.1 name UNDP as an additional insured under the liability policies, including, if required, as a separate endorsement under the policy;

13.5.2 include a waiver of subrogation of the Contractor's insurance carrier's rights against UNDP;

13.5.3 provide that UNDP shall receive written notice from the Contractor's insurance carrier not less than thirty (30) days prior to any cancellation or material change of coverage; *and*,

13.5.4 include a provision for response on a primary and non-contributing basis with respect to any other insurance that may be available to UNDP.

13.6 The Contractor shall be responsible to fund all amounts within any policy deductible or retention.

13.7 Except for any self-insurance program maintained by the Contractor and approved by UNDP for purposes of fulfilling the Contractor's requirements for maintaining insurance under the Contract, the Contractor shall maintain the insurance taken out under the Contract with reputable insurers that are in good financial standing and that are acceptable to UNDP. Prior to the commencement of any obligations under the Contract, the Contractor shall provide UNDP with evidence, in the form of certificate of insurance or such other form as UNDP may reasonably require, that demonstrates that the Contractor has taken out insurance in accordance with the requirements of the Contract. UNDP reserves the right, upon written notice to the Contractor, to obtain copies of any insurance policies or insurance program descriptions required to be maintained by the Contractor under the Contract. Notwithstanding the provisions of Article 13.5.3, above, the Contractor shall promptly notify UNDP concerning any cancellation or material change of insurance coverage required under the Contract.

13.8 The Contractor acknowledges and agrees that neither the requirement for taking out and maintaining insurance as set forth in the Contract nor the amount of any such insurance, including, but not limited to, any deductible or retention relating thereto, shall in any way be construed as limiting the Contractor's liability arising under or relating to the Contract.

14. ENCUMBRANCES AND LIENS: The Contractor shall not cause or permit any lien, attachment or other encumbrance by any person to be placed on file or to remain on file in any public office or on file with UNDP against any monies due to the Contractor or that may become due for any work done or against any goods supplied or materials furnished under the Contract, or by reason of any other claim or demand against the Contractor or UNDP.

15. EQUIPMENT FURNISHED BY UNDP TO THE CONTRACTOR: Title to any equipment and supplies that may be furnished by UNDP to the Contractor for the performance of any obligations under the Contract shall rest with UNDP, and any such equipment shall be returned to UNDP at the conclusion of the Contract or when no longer needed by the Contractor. Such equipment, when returned to UNDP, shall be in the same condition as when delivered to the Contractor, subject to normal wear and tear, and the Contractor shall be liable to compensate UNDP for the actual costs of any loss of, damage to, or degradation of the equipment that is beyond normal wear and tear.

16. COPYRIGHT, PATENTS AND OTHER PROPRIETARY RIGHTS:

16.1 Except as is otherwise expressly provided in writing in the Contract, UNDP shall be entitled to all intellectual property and other proprietary rights including, but not limited to, patents, copyrights, and trademarks, with regard to products, processes, inventions, ideas, know-how, or documents and other materials which the Contractor has developed for UNDP under the Contract and which bear a direct relation to or are produced or prepared or collected in consequence of, or during the course of, the performance of the Contract. The Contractor acknowledges and agrees that such products, documents and other materials constitute works made for hire for UNDP.

16.2 To the extent that any such intellectual property or other proprietary rights consist of any intellectual property or other proprietary rights of the Contractor: (i) that pre-existed the performance by the Contractor of its obligations under the Contract, or (ii) that the Contractor may develop or acquire, or may have developed or acquired, independently of the performance of its obligations under the Contract, UNDP does not and shall not claim any ownership interest thereto, and the Contractor grants to UNDP a perpetual license to use such intellectual property or other proprietary right solely for the purposes of and in accordance with the requirements of the Contract.

16.3 At the request of UNDP, the Contractor shall take all necessary steps, execute all necessary documents and generally assist in securing such proprietary rights and transferring or licensing them to UNDP in compliance with the requirements of the applicable law and of the Contract.

16.4 Subject to the foregoing provisions, all maps, drawings, photographs, mosaics, plans, reports, estimates, recommendations, documents, and all other data compiled by or received by the Contractor under the Contract shall be the property of UNDP, shall be made available for use or inspection by UNDP at reasonable times and in reasonable places, shall be treated as confidential, and shall be delivered only to UNDP authorized officials on completion of work under the Contract.

17. PUBLICITY, AND USE OF THE NAME, EMBLEM OR OFFICIAL SEAL OF UNDP OR THE UNITED NATIONS: The Contractor shall not advertise or otherwise make public for purposes of commercial advantage or goodwill that it has a contractual relationship with UNDP, nor shall the Contractor, in any manner whatsoever use the name, emblem or official seal of UNDP or the United Nations, or any abbreviation of the name of UNDP or the United Nations in connection with its business or otherwise without the written permission of UNDP.

18. CONFIDENTIAL NATURE OF DOCUMENTS AND INFORMATION: Information and data that is considered proprietary by either Party or that is delivered or disclosed by one Party (“Discloser”) to the other Party (“Recipient”) during the course of performance of the Contract, and that is designated as confidential (“Information”), shall be held in confidence by that Party and shall be handled as follows:

18.1 The Recipient shall:

18.1.1 use the same care and discretion to avoid disclosure, publication or dissemination of the Discloser’s Information as it uses with its own similar Information that it does not wish to disclose, publish or disseminate; *and*,

18.1.2 use the Discloser’s Information solely for the purpose for which it was disclosed.

18.2 Provided that the Recipient has a written agreement with the following persons or entities requiring them to treat the Information confidential in accordance with the Contract and this Article 18, the Recipient may disclose Information to:

18.2.1 any other party with the Discloser’s prior written consent; *and*,

18.2.2 the Recipient’s employees, officials, representatives and agents who have a need to know such Information for purposes of performing obligations under the Contract, and employees officials, representatives and agents of any legal entity that it controls, controls it, or with which it is under common control, who have a need to know such Information for purposes of performing obligations under the Contract, *provided that*, for these purposes a controlled legal entity means:

18.2.2.1 a corporate entity in which the Party owns or otherwise controls, whether directly or indirectly, over fifty percent (50%) of voting shares thereof; *or*,

18.2.2.2 any entity over which the Party exercises effective managerial control; *or*,

18.2.2.3 for the United Nations, a principal or subsidiary organ of the United Nations established in accordance with the Charter of the United Nations.

18.3 The Contractor may disclose Information *to the extent* required by law, *provided that*, subject to and without any waiver of the privileges and immunities of the United Nations, the Contractor will give UNDP sufficient prior notice of a request for the disclosure of Information in order to allow UNDP to have a reasonable opportunity to take protective measures or such other action as may be appropriate before any such disclosure is made.

18.4 UNDP may disclose Information to the extent as required pursuant to the Charter of the United Nations, or pursuant to resolutions or regulations of the General Assembly or rules promulgated thereunder.

18.5 The Recipient shall not be precluded from disclosing Information that is obtained by the Recipient from a third party without restriction, is disclosed by the Discloser to a third party without any obligation of confidentiality, is previously known by the Recipient, or at any time is developed by the Recipient completely independently of any disclosures hereunder.

18.6 These obligations and restrictions of confidentiality shall be effective during the term of the Contract, including any extension thereof, and, unless otherwise provided in the Contract, shall remain effective following any termination of the Contract.

19. FORCE MAJEURE; OTHER CHANGES IN CONDITIONS:

19.1 In the event of and as soon as possible after the occurrence of any cause constituting *force majeure*, the affected Party shall give notice and full particulars in writing to the other Party, of such occurrence or cause if the affected Party is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under the Contract. The affected Party shall also notify the other Party of any other changes in condition or the occurrence of any event which interferes or threatens to interfere with its performance of the Contract. Not more than fifteen (15) days following the provision of such notice of *force majeure* or other changes in condition or occurrence, the affected Party shall also submit a statement to the other Party of estimated expenditures that will likely be incurred for the duration of the change in condition or the event of *force majeure*. On receipt of the notice or notices required hereunder, the Party not affected by the occurrence of a cause constituting *force majeure* shall take such action as it reasonably considers to be appropriate or necessary in the circumstances, including the granting to the affected Party of a reasonable extension of time in which to perform any obligations under the Contract.

19.2 If the Contractor is rendered unable, wholly or in part, by reason of *force majeure* to perform its obligations and meet its responsibilities under the Contract, UNDP shall have the right to suspend or terminate the Contract on the same terms and conditions as are provided for in Article 20, "Termination," except that the period of notice shall be seven (7) days instead of thirty (30) days. In any case, UNDP shall be entitled to consider the Contractor permanently unable to perform its obligations under the Contract in case the Contractor is unable to perform its obligations, wholly or in part, by reason of *force majeure* for any period in excess of ninety (90) days.

19.3 *Force majeure* as used herein means any unforeseeable and irresistible act of nature, any act of war (whether declared or not), invasion, revolution, insurrection, terrorism, or any other acts of a similar nature or force, *provided that* such acts arise from causes beyond the control and without the fault or negligence of the Contractor. The Contractor acknowledges and agrees that, with respect to any obligations under the Contract that the Contractor must perform in areas in which UNDP is engaged in, preparing to engage in, or disengaging from any peacekeeping, humanitarian or similar operations, any delays or failure to perform such obligations arising from or relating to harsh

conditions within such areas, or to any incidents of civil unrest occurring in such areas, shall not, in and of itself, constitute *force majeure* under the Contract.

20. TERMINATION:

20.1 Either Party may terminate the Contract for cause, in whole or in part, upon thirty (30) day's notice, in writing, to the other Party. The initiation of conciliation or arbitral proceedings in accordance with Article 23 "Settlement of Disputes," below, shall not be deemed to be a "cause" for or otherwise to be in itself a termination of the Contract.

20.2 UNDP may terminate the Contract at any time by providing written notice to the Contractor in any case in which the mandate of UNDP applicable to the performance of the Contract or the funding of UNDP applicable to the Contract is curtailed or terminated, whether in whole or in part. In addition, unless otherwise provided by the Contract, upon sixty (60) day's advance written notice to the Contractor, UNDP may terminate the Contract without having to provide any justification therefor.

20.3 In the event of any termination of the Contract, upon receipt of notice of termination that has been issued by UNDP, the Contractor shall, except as may be directed by UNDP in the notice of termination or otherwise in writing:

20.3.1 take immediate steps to bring the performance of any obligations under the Contract to a close in a prompt and orderly manner, and in doing so, reduce expenses to a minimum;

20.3.2 refrain from undertaking any further or additional commitments under the Contract as of and following the date of receipt of such notice;

20.3.3 place no further subcontracts or orders for materials, services, or facilities, except as UNDP and the Contractor agree in writing are necessary to complete any portion of the Contract that is not terminated;

20.3.4 terminate all subcontracts or orders to the extent they relate to the portion of the Contract terminated;

20.3.5 transfer title and deliver to UNDP the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the portion of the Contract terminated;

20.3.6 deliver all completed or partially completed plans, drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to UNDP thereunder;

20.3.7 complete performance of the work not terminated; *and*,

20.3.8 take any other action that may be necessary, or that UNDP may direct in writing, for the minimization of losses and for the protection and preservation of any property, whether tangible or intangible, related to the Contract that is in the possession of the Contractor and in which UNDP has or may be reasonably expected to acquire an interest.

20.4 In the event of any termination of the Contract, UNDP shall be entitled to obtain reasonable written accountings from the Contractor concerning all obligations performed or pending in accordance with the Contract. In addition, UNDP shall not be liable to pay the Contractor except for those Goods satisfactorily delivered and/or Services satisfactorily provided to UNDP in accordance with the requirements of the Contract, but only if such Goods or Services were ordered, requested or otherwise provided prior to the Contractor's receipt of notice of termination from UNDP or prior to the Contractor's tendering of notice of termination to UNDP.

20.5 UNDP may, without prejudice to any other right or remedy available to it, terminate the Contract forthwith in the event that:

20.5.1 the Contractor is adjudged bankrupt, or is liquidated, or becomes insolvent, or applies for a moratorium or stay on any payment or repayment obligations, or applies to be declared insolvent;

20.5.2 the Contractor is granted a moratorium or a stay, or is declared insolvent;

20.5.3 the Contractor makes an assignment for the benefit of one or more of its creditors;

20.5.4 a Receiver is appointed on account of the insolvency of the Contractor;

20.5.5 the Contractor offers a settlement in lieu of bankruptcy or receivership; *or*,

20.5.6 UNDP reasonably determines that the Contractor has become subject to a materially adverse change in its financial condition that threatens to substantially affect the ability of the Contractor to perform any of its obligations under the Contract.

20.6 Except as prohibited by law, the Contractor shall be bound to compensate UNDP for all damages and costs, including, but not limited to, all costs incurred by UNDP in any legal or non-legal proceedings, as a result of any of the events specified in Article 20.5, above, and resulting from or relating to a termination of the Contract, even if the Contractor is adjudged bankrupt, or is granted a moratorium or stay or is declared insolvent. The Contractor shall immediately inform UNDP of the occurrence of any of the events specified in Article 20.5, above, and shall provide UNDP with any information pertinent thereto.

20.7 The provisions of this Article 20 are without prejudice to any other rights or remedies of UNDP under the Contract or otherwise.

21. NON-WAIVER OF RIGHTS: The failure by either Party to exercise any rights available to it, whether under the Contract or otherwise, shall not be deemed for any purposes to constitute a waiver by the other Party of any such right or any remedy associated therewith, and shall not relieve the Parties of any of their obligations under the Contract.

22. NON-EXCLUSIVITY: Unless otherwise specified in the Contract, UNDP shall have no obligation to purchase any minimum quantities of goods or services from the Contractor, and UNDP shall have no limitation on its right to obtain goods or services of the same kind, quality and quantity described in the Contract, from any other source at any time.

23. SETTLEMENT OF DISPUTES:

23.1 AMICABLE SETTLEMENT: The Parties shall use their best efforts to amicably settle any dispute, controversy, or claim arising out of the Contract or the breach, termination, or invalidity thereof. Where the Parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the Conciliation Rules then obtaining of the United Nations Commission on International Trade Law (“UNCITRAL”), or according to such other procedure as may be agreed between the Parties in writing.

23.2 ARBITRATION: Any dispute, controversy, or claim between the Parties arising out of the Contract or the breach, termination, or invalidity thereof, unless settled amicably under Article 23.1, above, within sixty (60) days after receipt by one Party of the other Party’s written request for such amicable settlement, shall be referred by either Party to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The decisions of the arbitral tribunal shall be based on general principles of international commercial law. The arbitral tribunal shall be empowered to order the return or destruction of goods or any property, whether tangible or intangible, or of any confidential information provided under the Contract, order the termination of the Contract, or order that any other protective measures be taken with respect to the goods, services or any other property,

whether tangible or intangible, or of any confidential information provided under the Contract, as appropriate, all in accordance with the authority of the arbitral tribunal pursuant to Article 26 (“Interim measures”) and Article 34 (“Form and effect of the award”) of the UNCITRAL Arbitration Rules. The arbitral tribunal shall have no authority to award punitive damages. In addition, unless otherwise expressly provided in the Contract, the arbitral tribunal shall have no authority to award interest in excess of the London Inter-Bank Offered Rate (“LIBOR”) then prevailing, and any such interest shall be simple interest only. The Parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such dispute, controversy, or claim.

24. PRIVILEGES AND IMMUNITIES: Nothing in or relating to the Contract shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including its subsidiary organs.

25. TAX EXEMPTION:

25.1 Article II, Section 7, of the Convention on the Privileges and Immunities of the United Nations provides, *inter alia*, that the United Nations, including its subsidiary organs, is exempt from all direct taxes, except charges for public utility services, and is exempt from customs restrictions, duties, and charges of a similar nature in respect of articles imported or exported for its official use. In the event any governmental authority refuses to recognize the exemptions of UNDP from such taxes, restrictions, duties, or charges, the Contractor shall immediately consult with UNDP to determine a mutually acceptable procedure.

25.2 The Contractor authorizes UNDP to deduct from the Contractor’s invoices any amount representing such taxes, duties or charges, unless the Contractor has consulted with UNDP before the payment thereof and UNDP has, in each instance, specifically authorized the Contractor to pay such taxes, duties, or charges under written protest. In that event, the Contractor shall provide UNDP with written evidence that payment of such taxes, duties or charges has been made and appropriately authorized, and UNDP shall reimburse the Contractor for any such taxes, duties, or charges so authorized by UNDP and paid by the Contractor under written protest.

26. MODIFICATIONS:

26.1 No modification or change in this Contract shall be valid and enforceable against UNDP unless executed in writing by the duly authorized representatives of the Parties.

26.2 If the Contract shall be extended for additional periods in accordance with the terms and conditions of the Contract, the terms and conditions applicable to any such extended term of the Contract shall be the same terms and conditions as set forth in the Contract, unless the Parties shall have agreed otherwise pursuant to a valid amendment concluded in accordance with Article 26.1, above.

26.3 The terms or conditions of any supplemental undertakings, licenses, or other forms of agreement concerning any Goods or Services provided under the Contract shall not be valid and enforceable against UNDP nor in any way shall constitute an agreement by UNDP thereto unless any such undertakings, licenses or other forms are the subject of a valid amendment concluded in accordance with Article 26.1, above.

27. AUDITS AND INVESTIGATIONS:

27.1 Each invoice paid by UNDP shall be subject to a post-payment audit by auditors, whether internal or external, of UNDP or by other authorized and qualified agents of UNDP at any time during the term of the Contract and for a period of three (3) years following the expiration or prior termination of the Contract.

27.2 UNDP may conduct investigations relating to any aspect of the Contract or the award thereof, the obligations performed under the Contract, and the operations of the Contractor generally relating to performance of the Contract at any time during the term of the Contract and for a period of three (3) years following the expiration or prior termination of the Contract.

27.3 The Contractor shall provide its full and timely cooperation with any such inspections, post-payment audits or investigations. Such cooperation shall include, but shall not be limited to, the Contractor's obligation to make available its personnel and any relevant documentation for such purposes at reasonable times and on reasonable conditions and to grant to UNDP access to the Contractor's premises at reasonable times and on reasonable conditions in connection with such access to the Contractor's personnel and relevant documentation. The Contractor shall require its agents, including, but not limited to, the Contractor's attorneys, accountants or other advisers, to reasonably cooperate with any inspections, post-payment audits or investigations carried out by UNDP hereunder.

27.4 UNDP shall be entitled to a refund from the Contractor for any amounts shown by such audits or investigations to have been paid by UNDP other than in accordance with the terms and conditions of the Contract. The Contractor also agrees that, where applicable, donors to UNDP whose funding is the source of, in whole or in part, the funding for the procurement of Goods and/or Services which are the subject of this Contract, shall have direct recourse to the Contractor for the recovery of any funds determined by UNDP to have been used in violation of or inconsistent with this Contract.

28. LIMITATION ON ACTIONS:

28.1 Except with respect to any indemnification obligations in Article 12, above, or as are otherwise set forth in the Contract, any arbitral proceedings in accordance with Article 23.2, above, arising out of the Contract must be commenced within three years after the cause of action has accrued.

28.2 The Parties further acknowledge and agree that, for these purposes, a cause of action shall accrue when the breach actually occurs, or, in the case of latent defects, when the injured Party knew or should have known all of the essential elements of the cause of action, or in the case of a breach of warranty, when tender of delivery is made, except that, if a warranty extends to future performance of the goods or any process or system and the discovery of the breach consequently must await the time when such goods or other process or system is ready to perform in accordance with the requirements of the Contract, the cause of action accrues when such time of future performance actually begins.

29. ESSENTIAL TERMS: The Contractor acknowledges and agrees that each of the provisions in Articles 30 to 36 hereof constitutes an essential term of the Contract and that any breach of any of these provisions shall entitle UNDP to terminate the Contract or any other contract with UNDP immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind. In addition, nothing herein shall limit the right of UNDP to refer any alleged breach of the said essential terms to the relevant national authorities for appropriate legal action.

30. SOURCE OF INSTRUCTIONS: The Contractor shall neither seek nor accept instructions from any authority external to UNDP in connection with the performance of its obligations under the Contract. Should any authority external to UNDP seek to impose any instructions concerning or restrictions on the Contractor's performance under the Contract, the Contractor shall promptly notify UNDP and provide all reasonable assistance required by UNDP. The Contractor shall not take any action in respect of the performance of its obligations under the Contract that may adversely affect the interests of UNDP or the United Nations, and the Contractor shall perform its obligations under the Contract with the fullest regard to the interests of UNDP.

31. STANDARDS OF CONDUCT: The Contractor warrants that it has not and shall not offer any direct or indirect benefit arising from or related to the performance of the Contract, or the award thereof, to any representative, official, employee or other agent of UNDP. The Contractor shall comply with all laws, ordinances, rules and regulations bearing upon the performance of its obligations under the Contract. In addition, in the performance of the Contract, the Contractor shall comply with the Standards of Conduct set forth in the Secretary General's Bulletin ST/SGB/2002/9 of 18 June 2002, entitled "Regulations Governing the Status, Basic Rights and Duties of Officials other than Secretariat Officials, and Expert on Mission" and ST/SGB/2006/15 of 26 December 2006 on "Post-employment restrictions", and shall also comply with and be subject to the requirements of the following documents then in force at the time of signature of the Contract:

31.1 The UN Supplier Code of Conduct;

31.2 UNDP Policy on Fraud and other Corrupt Practices ("UNDP Anti-fraud Policy");

31.3 UNDP Office of Audit and Investigations (OAI) Investigation Guidelines;

31.4 UNDP Social and Environmental Standards (SES), including the related Accountability Mechanism;

31.5 UNDP Vendor Sanctions Policy; and

31.6 All security directives issued by UNDP.

The Contractor acknowledges and agrees that it has read and is familiar with the requirements of the foregoing documents which are available online at www.undp.org or at <http://www.undp.org/content/undp/en/home/operations/procurement/business/>. In making such acknowledgement, the Contractor represents and warrants that it is in compliance with the requirements of the foregoing, and will remain in compliance throughout the term of this Contract.

32. OBSERVANCE OF THE LAW: The Contractor shall comply with all laws, ordinances, rules, and regulations bearing upon the performance of its obligations under the Contract. In addition, the Contractor shall maintain compliance with all obligations relating to its registration as a qualified vendor of goods or services to UNDP, as such obligations are set forth in UNDP vendor registration procedures.

33. CHILD LABOR: The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor's subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, *inter alia*, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

34. MINES: The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor's subsidiaries or affiliated entities (if any) is engaged in the sale or manufacture of anti-personnel mines or components utilized in the manufacture of anti-personnel mines.

35. SEXUAL EXPLOITATION:

35.1 In the performance of the Contract, the Contractor shall comply with the Standards of Conduct set forth in the Secretary-General's bulletin ST/SGB/2003/13 of 9 October 2003, concerning "Special measures for protection from sexual exploitation and sexual abuse." In particular, the Contractor shall not engage in any conduct that would constitute sexual exploitation or sexual abuse, as defined in that bulletin.

35.2 The Contractor shall take all appropriate measures to prevent sexual exploitation or abuse of anyone by its employees or any other persons engaged and controlled by the Contractor to perform

any services under the Contract. For these purposes, sexual activity with any person less than eighteen years of age, regardless of any laws relating to consent, shall constitute the sexual exploitation and abuse of such person. In addition, the Contractor shall refrain from, and shall take all reasonable and appropriate measures to prohibit its employees or other persons engaged and controlled by it from exchanging any money, goods, services, or other things of value, for sexual favors or activities, or from engaging any sexual activities that are exploitive or degrading to any person.

35.3 UNDP shall not apply the foregoing standard relating to age in any case in which the Contractor's personnel or any other person who may be engaged by the Contractor to perform any services under the Contract is married to the person less than the age of eighteen years with whom sexual activity has occurred and in which such marriage is recognized as valid under the laws of the country of citizenship of such Contractor's personnel or such other person who may be engaged by the Contractor to perform any services under the Contract.

36. ANTI-TERRORISM: The Contractor agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received under the Contract is used to provide support to individuals or entities associated with terrorism and that recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to Resolution 1267 (1999). The list can be accessed via https://www.un.org/sc/suborg/en/sanctions/1267/aq_sanctions_list. This provision must be included in all sub-contracts or sub-agreements entered into under the Contract.