INVITATION TO BID

Design, supply and commissioning of two Biogas systems in Domaine Taanayel Arc en Ciel Domaine - Taanayel, Bekaa and Masri Livestock - Aabdeh, Akkar - Lebanon

The Support Resilience in Time of Crisis:
Increase Availability of Energy at the Local Level Project
Beirut, Lebanon

United Nations Development Programme

October, 2017

Section 1. Letter of Invitation

Beirut, Lebanon
October 12, 2017

Design, supply and commissioning of two Biogas systems in Domaine Taanayel Arc en Ciel Domaine - Taanayel, Bekaa and Masri Livestock - Aabdeh, Akkar - Lebanon
Reference: LEB/CO ITB/187/17

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
Section 9 – Form for Performance Security
Section 10 –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.

You are kindly requested to submit an acknowledgment letter to UNDP to the following address:

United Nations Development Programme
Arab African International Bank Building, Riad El Solh Street
Nejmeh, Beirut 2011 5211, Lebanon
Email Address: lb.bidding@undp.org
Attention: Procurement Unit, UNDP Lebanon

The letter should be received by UNDP no later than **October 25, 2017**. 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. Your email indicated in the acknowledgment letter will be used for follow up communication, i.e. bid bulletins etc.

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,

Andreas Lehnert

UNDP Procurement Specialist

Section 2: Instruction to Bidders

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.

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
   6.2 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 <u>any</u> 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 SHEET

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:	The Support Resilience in Time of Crisis: Increase Availability of Energy at the Local Level Project
2		Title of Goods/Services/Work Required:	Design, construction and commissioning of two biogas systems consisting of digester, Biogas CHP unit, Biogas Treatment, Control and Monitoring Equipment, and auxiliary equipment and the provision of training and documentation on the operation and maintenance of the installed systems, in two sites in Lebanon as follows: **Site 1:** • **BGLB 1.1 Domaine Taanayel Arc en Ciel-Bekaa - Lebanon** **Site 2:** • **BGLB 1.2 Masri Livestock – Aabdeh (Akkar) - Lebanon**
3		Country:	Lebanon
4	C.13	Language of the Bid:	☒ English
5	C.20	Conditions for Submitting Bid for Parts or sub-parts of the Total Requirements	☒ Not Allowed
6	C.20	Conditions for Submitting Alternative Bid	☒ Shall not be considered
7	C.22	Site Visits	Interested bidders for site visit of the two (2) sites should confirm their attendance including the name of one (1) representative only by email **on or before Wednesday October 25, 2017** to the following contact details:

			Name: Mr. Jad El Baba **E-mail address:** jad.el-baba@undp.org The site visit schedule of the two (2) sites are as follows: Friday November 3 2017 at 10:00 am: Domaine Taanayel Arc en Ciel (Bekaa) - meeting point: main entrance Monday November 6, 2017 at 11:00 am: Masri Feedstock in Aabdeh (Akkar) - meeting point: main entrance.
8	C.21.1	Period of Bid Validity commencing on the submission date	☒ 120 days
9	B.9.5 C.15.4 b)	Bid Security	☒ Required Amount: **USD 11,000.00** Form: **See Enclosed Section 8- Form for Bid Security** Bidders shall assure that the bank issuing the bid security, does not add any additional clause and reference to the attached template of the bid security. If amendments to the template are made i.e. reference to Lebanese laws and other conditions not mentioned before in the template, UNDP may reject the bid.
10	B.9.5	Acceptable forms of Bid Security	☒ Bank Guarantee (See Section 8 for template)
11	B.9.5 C.15.4 a)	Validity of Bid Security	150 days from the last day of Bid submission. Bid Security of unsuccessful Bidders shall be returned.
12		Advanced Payment upon signing of contract	☒ Not allowed
13		Liquidated Damages	☒ Will be imposed under the following conditions: Percentage of contract price per week of delay: **0.5%** Max. no. of days of delay: **One month** Next course of action: **Termination of Contract**

14	F.37	Performance Security	☒ Required Amount: **10% of Contract Value** Form: **See Enclosed Section 9- Form for Performance Security** The performance security will be released by 30 days after the end of the defect liability period.
15	C.17 C.17.2	Preferred Currency of Bid and Method for Currency conversion	☒ United States Dollars (US$) *Reference date for determining UN Operational Exchange Rate:* ***November 14, 2017***
16	B.10.1	Deadline for submitting requests for clarifications/ questions	**Ten (10) working** days before the submission date.
17	B.10.1	Contact Details for submitting clarifications/questions[1]	Focal Person in UNDP: **Procurement Unit** Address: **Room # 310, 3rd Floor** **Arab African International Bank Building** **Riad El Solh Street** **Nejmeh, Beirut, 2011 5211, Lebanon** Fax No. : **+961 1 962 491** E-mail address dedicated for this purpose: **lb.bidding@undp.org**
18	B.11.1	Manner of Disseminating Supplemental Information to the ITB and responses/clarifications to queries	☒ Direct communication to prospective Bidders by email who submitted an acknowledgment letter.
19	D.23.3	No. of copies of Bid that must be submitted	Original: **One** Copies**: One**
20	D.23.1 b) D.23.2 D.24	Bid submission address	**Procurement Unit, UNDP Lebanon** **Room # 310, 3rd Floor** Arab African International Bank Building Riad El Solh Street Nejmeh, Beirut 2011 5211, Lebanon
21	C.21.1 D.24	Deadline of Bid Submission	Date and Time : **November 14, 2017 2:00 PM**

[1] *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.*

			Beirut Local Time
22	D.23.2	Manner of Submitting Bid	☒ Courier/Hand Delivery
23	D.23.2 D.26	Conditions and Procedures for electronic submission and opening, if allowed	Not Allowed
24	D.23.1 c)	Date, time and venue for public opening of Bid	Date and Time: **November 14, 2017 2:15 PM** Venue: **UNDP Lebanon Country Office**
25		Evaluation method to be used in selecting the most responsive Bid	☒ Non-Discretionary "Pass/Fail" Criteria on the Schedule of Requirements and Technical Specifications, and ☒ Lowest price offer of technically qualified/responsive Bid
26	C.15.1	Required Documents that must be Submitted to Establish Qualification of Bidders (In "Certified True Copy" form only)	☒ Company Profile, which should not exceed fifteen (15) pages, including printed brochures and product catalogues relevant to the goods/services being procured ☒ Tax Registration/Payment Certificate issued by the Internal Revenue Authority evidencing that the Bidder is updated with its tax payment obligations, or Certificate of Tax exemption, if any such privilege is enjoyed by the Bidder ☒ Certificate of Registration of the business, including Articles of Incorporation, or equivalent document if Bidder is not a corporation ☒ Trade name registration papers, if applicable ☒ Official Letter of Appointment as local representative, if Bidder is submitting a Bid on behalf of an entity located outside the country ☒ Quality Certificate (e.g., ISO 9001) and/or other similar certificates, accreditations, awards and citations received by the Bidder, if any. ☒ Environmental Compliance Certificates, Accreditations, Markings/Labels, and other evidences of the Bidder's practices which contributes to the ecological sustainability and reduction of adverse environmental impact (e.g., use of non-toxic substances, recycled raw materials, energy-efficient equipment, reduced carbon emission, etc.), either in its business practices or in the goods it manufactures, if any

			☒ Plan and details of manufacturing capacity, if Bidder is a manufacturer of the goods to be supplied ☒ Certification or authorization to act as Agent on behalf of the Manufacturer, or Power of Attorney, if bidder is not a manufacturer ☒ Latest Audited Financial Statement (Income Statement and Balance Sheet) including Auditor's Report for the past Two (2) years ☒ Statement of Satisfactory Performance from the Top Five (5) Clients in terms of Contract Value the past Three (3) years. ☒ All information regarding any past and current litigation during the last five (5) 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.
27		Other documents that must be Submitted to Establish Eligibility	- VAT Registration Certificate (if applicable) - Statement of warranty for the system by the bidder - Power of Attorney for Joint Venture/ Consortium - Detailed method of statement for implementation within the requested timeframe and system specification and a detailed work plan that reflects a clear strategy for works implementation. - Projects reference list that shows experience of the Offeror in similar projects - minimum of three (3) - in nature and value for the last 5 years. - Proven track record with details, specifications and pictures of a minimum of two (2) completed Biogas projects with a cumulative installed capacity of 100 kWe. - Time schedule for supply, transportation, installation, commissioning, documents and training complies with the deadline set in the ITB. - Proposed Work-Plan/Activity Schedule (Gantt chart). A schedule based on the duration set in the work plan indicating clearly the main activities duration, resources, with clear allocations of labor, material and equipment resources vs the quantities of works to be executed in accordance with the programme of works. - A description of the organizational units(s) that will become responsible for the Contract, and the general management approach for a project of this kind.

			- Proof of Financial Capacity that shows the Offeror's annual turnover equal or above 500 thousand USD. - Proof of after-sales service capacity and appropriateness of local service and technical support available. - Information about the Manufacturer's Entity (with quality certificates such as ISO 9001 or equivalent) along with proof that the manufacturer has been active for the past 5 years. - Statement of warranty of defects in material and workmanship and operation and performance guarantee, backed by the manufacturers guarantee on the main components. - Team Composition and Task Assignments. − CVs of Key Staff: at least 1 biogas expert, 1 mechanical engineer and 1 electrical engineer.
28	C.15	Structure of the Technical Bid and List of Documents to be Submitted	See Section 2- Instructions to Bidders, Clause 15
29	C.15.2	Latest Expected date for commencement of Contract	Upon contract signature
30	C.15.2	Maximum Expected duration of contract	The overall term of execution is spread over eight (8) months, effective from contract signature date.
31		UNDP will award the contract to:	☒ One (1) Bidder, depending on the following factors: - A result of Pass on all the Non-Discretionary "Pass/Fail" Criteria on the Schedule of Requirements and Technical Specifications and - Lowest price offer of technically qualified/responsive Bid
32	F.34	Criteria for the Award and Evaluation of Bid	**Award Criteria** ☒ Non-discretionary "Pass" or "Fail" rating on the detailed contents of the Schedule of Requirements and Technical Specifications ☒ Compliance on the following qualification requirements : **Bid Evaluation Criteria** ☒ Full Compliance of Bid to the Scope of Works and Technical Specifications and Standards; ☒ Full acceptance of the Contract General Terms and Conditions.

			☒ Demonstrated ability to honour important responsibilities and liabilities allocated to Supplier in this ITB (e.g. financial, performance guarantees, warranties, or insurance coverage, etc…) ☒ The time schedule for design, supply, transportation, installation, commissioning, documents and training complies with the deadlines set in the ITB; ☒ Proof that the Manufacturers of the main components has been active for the past 5 years and has ISO 9001 quality management certificate between others compliance certificate; ☒ Projects reference list that shows experience of the Offeror in similar projects - minimum of three (3) - in nature and value for the last 5 years. ☒ Proof of the successful operation in similar environmental and climatic conditions for at least 5 years for the main system's components. ☒ Proven track record with details, specifications and pictures of a minimum of two (2) completed Biogas projects with a cumulative installed capacity of 100 kWe. ☒ Proof of after-sales service capacity and appropriateness, experience and capability of local service and technical support available. ☒ The Organization and Methodology approach proposed for this Contract has the necessary general management skills and team composition of the organizational units for a project of this kind. ☒ CVs of Key Staff: at least 1 biogas expert, 1 mechanical engineer and 1 electrical engineer. ☒ The technical description of equipment and preliminary design comply with the requirements of design, performance and size of the ITB. ☒ The necessary and sufficient on-site presence and supervision of the international partner(s) and/or biogas expert (who have relevant experience in Biogas systems and/or from whom the equipment is being purchased) during the project implementation and commissioning (minimum of 3 site visits over the duration of the contract); ☒ Datasheets, Catalogues and Certificates of conformity of the main components (Anaerobic Digester, CHP unit, gas treatment, and other components) meet or exceed the requirements of

			this ITB and the relevant international performance standards. ☒ Authorization by the main goods' manufacturers of all components to Bidder offering to supply the goods in the country of final destination. Not required for the goods which the Bidder manufactures. ☒ Technical Capacity: Proof the bidder has minimum of three (3) past contracts similar in nature and value for the last 5 years. ☒ Financial Capacity: Proof that the Bidder has an annual Turnover equal or above 500 thousand USD and a Quick Ration (QR) above 1; ☒ The statement of warranty of defects in materials and workmanship and operation and performance guarantee backed by the manufacturers' guarantee on all the main components and the entire system, meets or exceeds the required periods.
33	E.29	Post qualification Actions	☒ Verification of accuracy, correctness and authenticity of the information provided by the bidder on the legal, technical and financial documents submitted; ☒ Validation of extent of compliance to the ITB requirements and evaluation criteria based on what has so far been found by the evaluation team; ☒ Inquiry and reference checking with other previous clients on the quality of performance on ongoing or previous contracts completed; ☒ Testing and sampling of completed goods similar to the requirements of UNDP, where available;
34		Conditions for Determining Contract Effectivity	☒ UNDP's receipt of Performance Bond ☒ Signature of Contract by UNDP and the winning Contractor
35		Other Information Related to the ITB	The Contractor shall provide a liability insurance with a minimum coverage amount of USD 1,100,000 and such insurance shall remain valid for the entire Contract duration

Section 3a: Schedule of Requirements and Technical Specifications

1. BACKGROUND

The Support Resilience in Time of Crisis: Increase Availability of Energy at the Local Level Project is funded by the Government of Netherlands and implemented by the United Nations Development Programme (UNDP) in partnership with the Ministry of Energy and Water.

The project's objective is to increase the implementation of solar photovoltaic and/or other renewable energy projects within Non-Governmental Organizations (NGO), Community-based Organizations, or public sector, having a social impact or serving a social cause, located within the 251 most vulnerable communities in Lebanon, as a medium-term approach to reducing the impact of the Syrian crisis on the most vulnerable portion of the population and is in line with the Lebanon Crisis Response Plan for 2017 - 2020.

The project will therefore implement several photovoltaic systems or other renewable energy systems in different institutes across Lebanon, which will reduce the electricity consumption from the national grid, the diesel consumption from the on-site private generators and injects the surplus of energy generation into the national grid via the net-metering scheme; adopted by the Ministry of Energy and Water (MoEW) and Éléctricité du Liban (EDL) in July 2011 (Ref: 318-32/2011).

2. OBJECTIVES

The objective of this ITB is design, construction and commissioning of two Biogas systems consisting of digester, Biogas CHP unit, Biogas Treatment, Control and Monitoring Equipment, and auxiliary equipment and the provision of training and documentation on the operation and maintenance of the installed systems.

These two projects are considered instrumental for the dissemination of this technology in Lebanon and the region. Thereby, the project's clients and the UNDP are aiming for the highest standards in workmanship and equipment, and the evaluation of the bids will be done with the highest attention to detail and without any compromise on quality of service, to ensure the success of this project.

3. LIST OF SITES

The two Biogas power plants shall be delivered and installed at the following site:

Site 1: Domaine Taanayel Arc en Ciel Domaine - Taanayel, Bekaa

Site 2: Masri Livestock - Aabdeh, Akkar

4. GLOSSARY OF TERMS

Biogas components	
Biogas	Biogas typically refers to a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen. Biogas can be produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. Biogas is primarily methane (CH4) and carbon dioxide (CO2) and may have small amounts of hydrogen sulphide (H2S), moisture and siloxanes. Biogas is a renewable energy source.
Digester	Container in which the conditions for anaerobic decomposition of organic solids are controlled in order to promote decomposition and allow extraction of decomposition products
Anaerobic Digestion	A collection of processes by which microorganisms break down biodegradable material in the absence of oxygen. The process is used for industrial or domestic purposes to manage waste or to produce fuels.
CSTR	Continuous Stirred Tank Reactor
Pressure Valve	A device for controlling the passage of fluid or gas through a pipe, duct, etc., it is a type of safety valve used to control or limit the pressure in a system.
Flare	Gas combustion device for burning off flammable gas released in case of planned or unplanned over production of gas.
Gas Blower	A blower is a machine for moving volumes of a gas with moderate increase of pressure
Digester Effluent	Waste or discharge from digester.
Drying Bed	A sludge drying bed is an open area at water treatment plant or a wastewater treatment plant where moist sludge is left to dry.
Mechanical separator	Solid-liquid separation of livestock manure involves the partial removal of organic and inorganic solids from liquid manure by using the effects of gravity or by using a mechanical device. Mechanical separation typically may involve a screen, press, or centrifuge.
Desulphurisation	Biogas contains hydrogen sulfide (H2S), a by-product gas that must first be removed prior to biogas burning or utilization in order to reduce health risks, equipment corrosion, and harmful sulfur emissions from entering the atmosphere
Air Dosing	Controlled insertion of air into a digester storage, with the aim of allowing biological reduction of H2S
Normal cubic metre (Nm3)	Cubic metre of gas under normal conditions of temperature (0°C), pressure (1.013 bar) and humidity (0% water vapour)
Biogas power plants	
CHP	Cogeneration or combined heat and power (CHP) is the use of a heat engine or power station to generate electricity and useful heat at the same time.
Spark plug engine	A type of internal combustion engine that converts gaseous or liquid fuels to mechanical power, in which the internal combustion is triggered by means of an electrical spark.
Interconnection	The result of the process of electrically connecting a distributed generation plant to a distribution system in order to enable the two systems to operate in parallel with each other.
Grid-connected operation	The operating mode in which a biogas plant is operating in parallel with an electric grid. Site loads will be electrified by either or both the utility or the plant. Electricity will be able to flow into the grid if the utility permits back feed operation.
Biogas plant	The combination of equipment and installations required for the production of biogas and its conversion to final energy, including but not limited to a digester, gas treatment and generator unit.
Synchronization	In an alternating current electric power system, synchronization is the process of matching the frequency, voltage and phase of a generator or other power source to a running network.
Adsorption	The physical adhesion of molecules of a gas or liquid or solute as a thin film on the outside surface or on internal surfaces within an adsorbent
Island mode operation	Mode of operation in which a generator or other power source supplies electrical energy directly to a load without interconnection with another power source or electrical grid system
Safety disconnect sub-system	The component(s) that monitor(s) utility grid conditions and open(s) a safety disconnects for out-of-bound conditions.
Data logging and evaluation sub-system	The measurement and logic component(s) that register and process all relevant operational parameters and data of the plant to establish the daily, monthly and annual final yields, losses and performance of the subsystems.
Biogas plant performance parameters	
Load	An electrical component that converts electricity into a form of useful energy and only operates when voltage is applied.
Losses	The electrical power or energy that does not result in the service that is intended for the electricity.
Generator rated capacity	The rated power output of a generator following ISO 8528

Efficiency	The ratio of output quantity over input quantity. The quantity specified is normally the power, energy, or electric charge produced by and delivered to a component. Symbol: η is commonly used. Units: dimensionless, usually expressed as a percentage (%).
Rated efficiency	Pertaining to a device: The efficiency of a device at its rated operating conditions
Power efficiency	The ratio of active output power to active input power.
Biogas Composition	Biogas is characterized based on its chemical composition and the physical characteristics which result from it. It is primarily a mixture of methane (CH4) and carbon dioxide (CO2) but may also contain traces of other gases.
Testing and certification	
Inspection	Evaluation for conformity by measuring, observing, testing, or gauging the relevant characteristics as required by the technical specifications.
Tests	Technical operations to establish of one or more characteristics of a given product or service according to a specified procedure.
Acceptance testing	Site-specific testing to assure acceptable performance as required by the technical specifications.
Verification	Confirmation by examination and recording of physical evidence that specified requirements have been met.
Verification testing	Site-specific, periodic testing to assure continued acceptable performance.
Certificate of conformity	A label, nameplate, or document of specified form and content, directly associated with a product or service on delivery to the purchaser, attesting that the product or service is in conformity with the requirements of the certification program (e.g., with the referenced standards and specifications).
Miscellaneous	
Horticulture	The art or practice of garden cultivation and management.
Hydroponic	The process of growing plants in sand, gravel, or liquid, with added nutrients but without soil.
Cattle	Cows and bulls kept on a farm for milk or meat.
Manure or dung	An organic matter, mostly derived from animal faeces
Sorted organic waste	Waste consisting of only organic elements such as leftover food, garden and lawn clippings, animal and plant based material, degradable carbon such as paper, cardboard and timber.
Compost	Compost is organic matter that has been decomposed and recycled as a fertilizer and soil amendment.
Composting tunnel	A technology used to process organic material to produce compost, a key ingredient in organic farming.
Feedstock	Raw material for anaerobic digestion or fermentation
Lactoserum	The liquid remaining after milk has been curdled and strained. It is a byproduct of the manufacture of cheese or casein and has several commercial uses.
Dry matter	Refers to material remaining after removal of water
Organic dry matter	Refers to the loss in weight of dry matter after 15h at 550°C expressed as a percentage of dry matter
Earthing	A protection against electric shocks.

5. REQUIRED DELIVERABLES

The following presents the list of required deliverables. These are inclusive of all man-power, tools or machinery, storage or transport, needed for the supply and installation of these deliverables.

Deliverable 1: Installation shop drawings, including electrical, mechanical and civil works drawings (Three hard copies and one soft copy, in PDF and AutoCAD formats, on DVD); Detailed system design and technical report (describing the final solution and methodology); Detailed Planned Schedule of works; A concise Environmental Statement specifying waste disposal arrangements during installation; A description of the proposed performance and acceptance testing procedure and templates; A letter

certifying the requirements on warranties, spare parts and standards (to be resubmitted). **2 months after contract signature.**

Deliverable 2: On site supply and delivery of the complete Biogas plant with all components needed for its operation as well as the connections needed for the supply of biogas input that ensures full plant operation. **4 months after contract signature.**

Deliverable 3: Installation, startup and commissioning of the complete Biogas plant with all components needed for its interconnection to the existing installation, operation, and all related performance testing. Delivery of final commissioning report.

Deliverable 4: Training on Operation and Maintenance of the Installed Equipment for the beneficiary's representatives, as well as provision of training manuals, end user manuals, checklists, as-built drawings for both the client and the beneficiary, open workshop for interested parties on the operation and maintenance of the sites.

Deliverable 3 & 4: 8 months after contract signature.

The awarded party must remain at the disposal of the client/beneficiary for at least one month after hand over in order to answer any technical or non-technical questions, and in order to be present on site when the client/beneficiary will perform his own functional tests to check that all technical requirements have been fulfilled.

6. TERMS OF EXECUTION

Timeframe: The Start date of the contract is **immediate**. The overall term of execution of this contract is **spread over 8 months**, effective from contract signature date. This includes the supply and delivery of the equipment to site, the installation and commissioning of the equipment, the testing of the assembled systems, the training of personnel and the hand-over. The awarded party has to have all deliverables completed and approved before/by the last working day of the contract period. Extensions, if deemed necessary, can only be granted through mutual agreement between the parties.

Shipment and Storage: The awarded party is responsible for clearing delivered equipment from Beirut port. The awarded party is also responsible for ensuring an adequate interim storage space for all delivered equipment.

Branding Display: All labelling related to the equipment's brand name, model or other, has to be highly discreet and unobtrusive, and readable only from very near distances of less than 1m.

Replacement and Spare Parts: All components that maybe replaced during the life time of the product need to have spare parts available at the Contractor. The spare parts need to be available

for 20 years after the date of installation. Equivalent parts replacing the installed item can be proposed with the customer approval.

Guarantees: The supplied installations shall be tested, commissioned and handed over complete and in perfect operating condition and shall be covered under a defects liability (parts and labour) for a minimum period of 24 months (2 years) from the date of commissioning. This warranty covers all manufacturer / workmanship defects only.

Furthermore, all main components shall also have an individual warranty of defects in materials and workmanship and an operation and performance guarantee backed by the manufacturer for a minimum period as specified below:

1. Combined Heat and Power (CHP) Unit: 2 years or 8,000 operating hours (*whichever comes first*).
2. Double membrane gas holder: 4 years.
3. Digester fabric: 2 years.
4. All electric and mechanical equipment: 2 years.
5. System guarantee period: 2 years

The Contractor must be available to answer any request that comes from the client within one week.

The Contractor has a maximum of two (2) weeks to replace any defective component.

It is understood that any alteration made to the product without the prior written approval of the Contractor will automatically cancel the remaining warranty period on the affected part.

7. REQUIRED COMPETENCIES

Required Competencies of the Bidder:

- Financial Capacity: The Bidder should have an annual Turnover equal or above 500 thousand USD. Supporting documents are requested to be submitted within the offer.
- The Bidder must be financially sound with having a QR>1.
- A minimum of 3 past contracts of similar nature and value over the last 5 years.
- Proven track record with details, specifications and pictures of a minimum of two (2) completed Biogas projects with a cumulative installed capacity of 100 kWe.

Required Competencies of the proposed team:

Biogas expert:

- Educational background: mechanical engineering, process engineering or related field (minimum BSc or equivalent)
- Experience: >10 years in biogas industry; engineering, constructing, and commissioning of medium to large scale biogas plants for electricity production (CSTR and lagoon type)
- Experience with projects in a similar setting is an advantage

Mechanical engineer:

- Educational background: mechanical engineering (minimum BE or equivalent)
- Experience: >5 years in industry; plant engineering, installation of mechanical equipment, piping systems and generators; experience with gaseous fuel projects is an advantage
- Good knowledge of Lebanese construction regulations

Electrical engineer:

- Educational background: electrical engineering (minimum BE or equivalent)
- Experience: >5 years in industry; design and implementation of electrical installations, small to medium scale electricity generation systems
- Good knowledge of Lebanese electrical installation regulations

TECHNICAL SPECIFICATIONS

The technical specifications consist of the system and components' technical description included herein. Yet, the detailed design is only a sample, and bidders are requested to submit a preliminary configuration and design for each site within the bidding 2 sites. Bidders, however, have to meet the total capacities and the specifications for the system and components as specified within this document.

Winning Contractors will be requested to submit a detailed design as part of deliverable 1.

The Contractor shall account for the design, supply and installation, for the winning 2 sites, taking into account the requirements, specifications and standards listed in this document.

This section includes the following items:

1. General Requirements
2. System Specifications
3. Components
4. Installation Requirements
5. Data analysis and evaluation
6. Verification Tests

1. GENERAL REQUIREMENTS

1.1. SCOPE

The works under this project consists of supplying all the systems' components, installing, testing and handing over in good operating conditions complete systems detailed in this ITB.

The project consists of the installation of the following equipment:

- CHP unit
- Digester tank *(in sites where this is requested)*
- Double gas membrane (*in sites where it is requested*)
- Digester bag, liner and/or cover material (*in sites where it is requested*)
- Pumps
- Flare and gas blower
- Mixers (*in sites where it is requested*)
- Mechanical separator (*in sites where it is requested*)
- Gas treatment
- Control and monitoring equipment

The Contractor shall provide all necessary components, and accessories as well as manpower, civil works, scaffolding, etc, at the Contractor's own expense to install complete operational units.

The Biogas systems shall be installed in existing facilities of the indicated beneficiary sites and grid – tied (*in sites where it is required*) or standalone.

The equipment furnished to these specifications must meet or exceed all requirements herein.

Bidders are cautioned to read the specifications carefully, as there may be special requirements not commonly offered by all manufacturers. Nevertheless, the technical specifications presented herein are not to be interpreted as necessarily defining a particular manufacturer's product, model or features. The equipment shall conform in capability, strength, quality and workmanship to the accepted industry standards and relevant international quality standards.

It should be noted that the equipment offered should be suitable for operation at 220V, 50 Hz and there may be voltage sags and voltage surges from the utility grid side during storms.

1.2. ENVIRONMENTAL AND CLIMATIC CONDITIONS

All equipment shall be fully operational in the following conditions:

- Relative humidity up to 95%
- Ambient temperature from -10ºC to 45ºC
- Rural environment with high presence of dust, insects, etc.

External equipment shall additionally withstand the following conditions *(proof shall be submitted)*:

- High ultra violet radiation
- Wind speeds up to 120 km/h

The ability of the equipment of the same basic design and size to operate correctly in the indicated environmental and climatic conditions shall be proven by appropriate documentation on successful operation of at least 5 years.

1.3. GENERAL CONDITIONS

- The Contractor shall state the manufacturers' guarantee on the different components as well as local representation available for service and technical support.

- The Contractor shall secure a team of specialized engineers, technicians and skilled workers qualified to carry out the requested tasks successfully. The number of teams shall be sufficient to carry out the required works within the specified time frame of the contract.

- The Employer has the right to decline the Bidder's team if it proved to be technically unqualified. The Contractor then should secure a replacement within 48 hours from notification and should remain bound to the schedule of delivery.

- The Contractor shall visit the selected sites in order to inspect them prior to the installation and to prepare an installation plan to collate the amount of work to be done in each facility.

- As soon as the Contractor receives the Employer's instruction to initiate the work, the Bidder has to secure a prior written and signed approval on all the procured materials (CHP unit, digester, gas treatment, control and monitoring equipment and auxiliary units) that will be used during the installation and has to obtain prior approval of the Client on the installation plan after coordination with the Beneficiary in order to facilitate the access of the Contractor's team.

- The components delivered to the selected site shall be considered under the Contractor's responsibility until the final operational system is handed over to Employer. It may be noted that the road conditions may be adverse and the packing shall therefore protect the equipment thoroughly from moisture and vibrations.

- The Contractor should remove the waste of works undertaken including the trash and dirt resulting from the works following Employer disposal recommendations. The site should be returned to initial state of cleanliness.

- The Contractor shall conduct a verification test for the plant in the presence of a qualified inspector of the purchaser and the required biogas expert. The test procedure shall be submitted prior to any test for review and approval. The Contractor shall instantly fix any malfunction resulting from the test and repeat the test.

1.4. TECHNICAL REQUIREMENTS

1.4.1 Scope of services

1.4.1.1 Design and alignment of design with related components

- Contractor is expected to carry out a site inspection prior to the start of all further activities
- Submission of:
  - Initial designs;
  - Post commissioning as-built drawings;
  - Technical documentation;
  - Operational and maintenance manuals including operational hours and internal power consumption of delivered equipment.
- Preparation and submission of detailed design for acceptance by beneficiary and UNDP based on plot properties, capacity of equipment and guaranteed performance to reach the specified output.
- Submission of time schedule and Gantt chart for the execution of the total job.
- Comprehensive maintenance plan for the complete project duration including elaboration on the OPEX.

1.4.1.2 Installation, commissioning and training

- Supply of materials & equipment necessary for turn-key operation biogas plant; construction, fabrication, installation & commissioning.
- Post commissioning operation of the plant including stabilization & performance monitoring & training on operation & maintenance of the biogas plant and the delivered components.
- Spare parts and consumables for the system guarantee period from start of biogas production. Spare parts and consumable usage after this period shall be specified in the maintenance plan.
- Site safety – The contractor will ensure that relevant safety regulations are complied with during the guarantee system guarantee period.
- A general safety plan shall be submitted with reference to NEN NTA 9766:2014, Fachverband Biogas (Guidelines for the safe use of biogas technology), or similar.
- A plan on the operation of the plant shall be provided, including:
  - Expected duration of labour on daily or weekly basis;
  - Roles, skills and expertise of operators;
  - Operational risk estimation and related mitigation measurements.
- The bidder has to give declaration in their offer to ensure compulsory use of all necessary Personal Protective Equipment like boiler suits, safety shoes etc. by all of his workmen.
- The responsibility of organizing and conducting a training of the beneficiaries will rest on the successful bidder. The training will be organized in consultation with both beneficiaries and UNDP. A training plan will be prepared and sent for approval by UNDP 2-months prior to the proposed training date. The training program will focus on operation and maintenance of the biogas plant. Technical documentation on operation, maintenance and safety instructions should be made available in English.

- The Contractor shall conduct an open training session (workshop) for all UNDP's engineers and technicians and interested professionals in the field on all related operation and maintenance issues of the systems.

1.4.1.3 Service and availability of spare parts

- The bid shall include spare parts and consumables for a period of 2 years (24 months).
- A system guarantee period of at least 2 years (24 months) shall be given.
- Minimum guarantee on components (material and fabrication faults) shall be as follows:
    - CHP unit: 2 years or 8,000 operating hours, whichever comes first
    - Double membrane gas holder: 4 years
    - Digester fabric: 2 years.
    - All electrical and mechanical equipment: 2 years

1.4.1.4 Other specifications to be confirmed by bidder in his / her design

The bidder has to provide the following information together with the project documentation to be handed over to the respective beneficiaries and UNDP upon starting of operation:

- Data sheets and technical documentation and manuals necessary to understand the general design of the Plant
- The Contractor shall provide user easy-to-use guides for the beneficiaries use in Arabic and English.
- List of all installed equipment: including specification like dimension, capacity, place of ordering/construction etc.
- Estimated biogas generation, Nm^3/day.

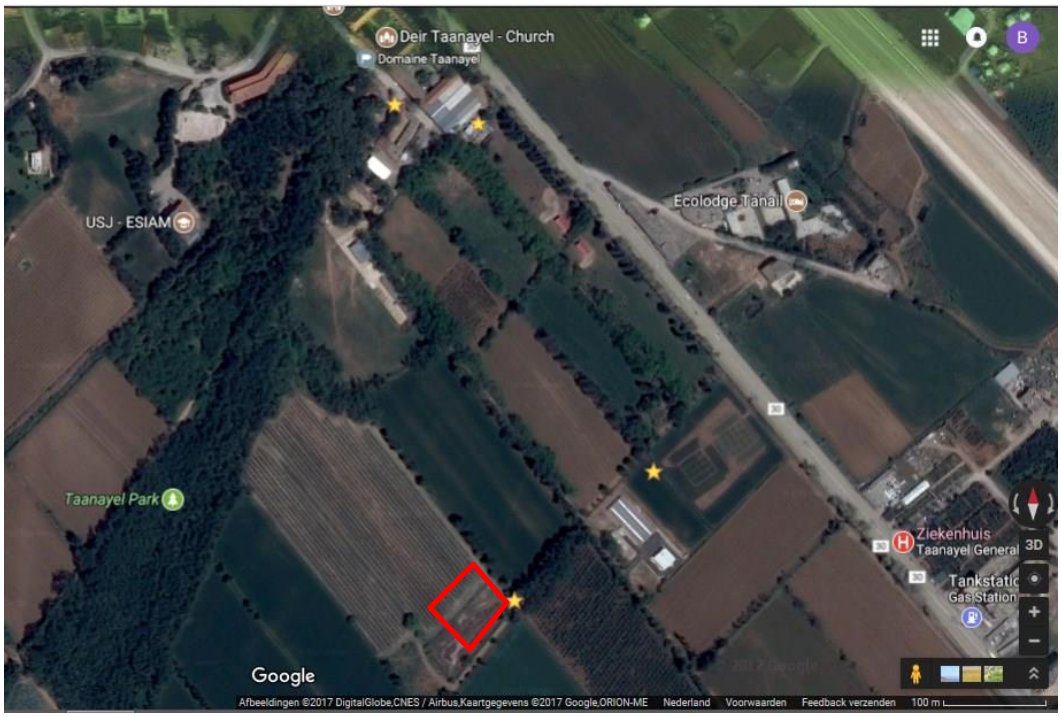
1.4.2. Site 1: BGLB 1.1 Domaine Taanayel Arc En Ciel (Bekaa)

1.4.2.1 Site Description

The project beneficiary is Arcenciel, a Lebanon based NGO that is involved in a wide range of sociocultural, economic and environmental activities throughout the country. At Domaine Taanyel, the organisation is involved in ecotourism, agriculture, horticulture, livestock management, dairy processing and waste processing. The Domaine is well accessible, located on the Beirut-Damascus International highway.

The biogas plant is to be installed at a composting site on the Domaine, where currently cattle manure and organic waste are composted. A composting tunnel and sieving installation are present on the site but there is no grid connection. Total available space on the terrain is approx. 30 x 40m.

GPS: 33°47'37.5"N, 35°52'19.0"E, altitude 850 metres



Aerial view of Domaine Taanyel Arc en Ciel , indicating the proposed biogas plant location



Proposed location for the biogas plant (composting site with composting tunnels and sieve)

1.4.2.2 Climate

Annual average temperature at the site is approx. 15°C.

Monthly averages are:

- Highest in the months of July and August (24°C)
- Lowest in January (6°C).

1.4.2.3 Feedstocks

Available feedstocks for biogas production are solid cattle manure, lactoserum and source-separated organic waste.

- The cattle manure is produced by 100 heads of dairy cattle. At present, the total average quantity is approx. 2.1 t/d in summer and 4.2 t/d in winter. The manure is currently removed from the stables and transported once per week to the composting site on the Domaine – which is the proposed location of the biogas plant on the Domaine. The frequency of removal can be changed.
- The lactoserum is a by-product from the production of cheese and labneh. At present, the total average quantity is 300 litres per day. The lactoserum is currently flushed away.
- The dairy activities will be scaled up by 50-100% in the near future; an increase of 50% of the abovementioned feedstocks should be considered.
- The separated organic waste is collected from nearby communities. The average quantity is 200 kg per day.

The table below gives an overview of the feedstocks to be considered for the biogas plant.

	Quantity (t fresh/d)		**Dry matter content**	**Organic dry matter content**	**Projected biogas yield**
	Summer	Winter	%	% of DM	Nm^3/tODM
Solid cattle dung	3.15	6.30	14%	85%	300
Lactoserum	0.45	0.45	7%	95%	500
Separated organic waste	0.20	0.20	25%	85%	400
Total	3.80	6.95			

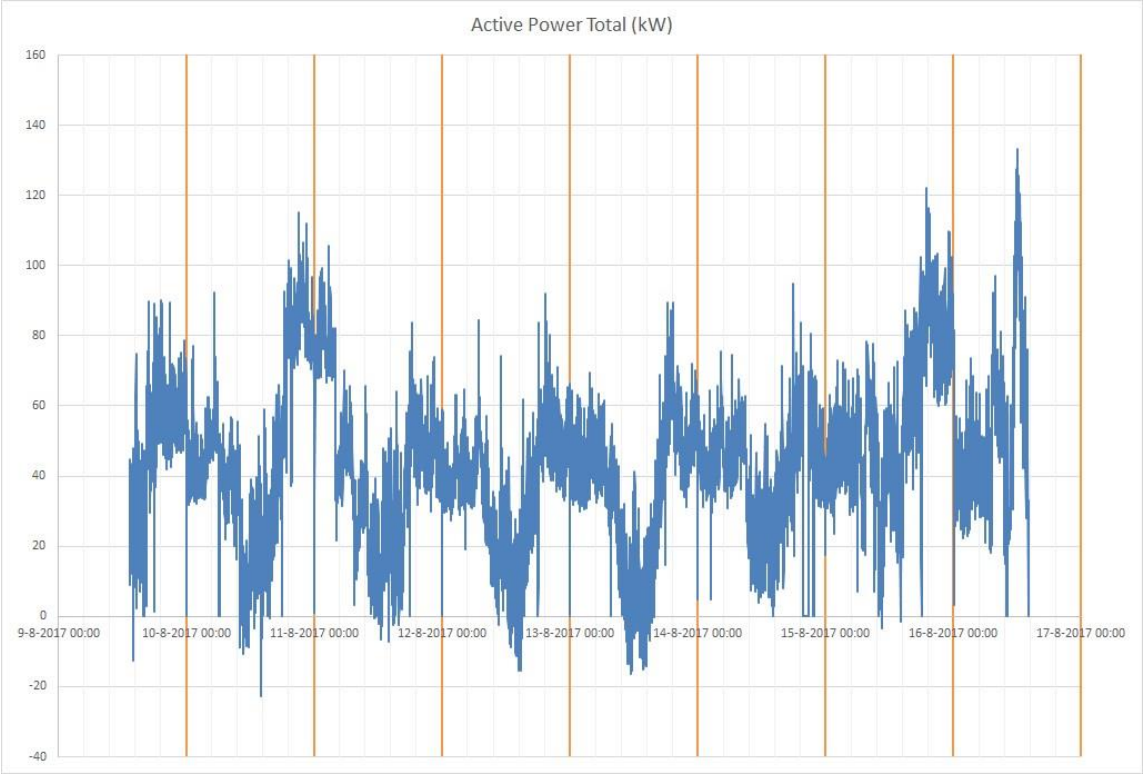
The overall mixture will have a dry matter content of approx. 14% with an organic dry matter content of approx. 85.5%. Additional water may be required to bring down the solids content (indicative 2 m^3/d); part of this could be recovered from the digester effluent (liquid fraction from separator).

1.4.2.4 Energy Demand

Electricity demand is currently some 40,000 kWh/month (measured early August 2017), which is expected to increase due to the expansion of existing activities and the adoption of new ones. There

will be some level of seasonal fluctuation because of the use of cold storage rooms.

Approximately one-third of the demand is covered by the organisation's PV panels (95kWp); additional 60kWp capacity will be installed by the end of 2017. The remaining electricity demand is covered by grid supply from Electricité du Zahle (available 24/7). During summer months the PV system covers much of the daytime electricity demand, and electricity is even fed back into the grid. Outside PV peak hours (approx. 10-14 h/d), base demand is approx. 30 kWe. The additional PV capacity could slightly reduce these hours during summer time.



Load graph of Domaine Taanyel (net of PV generated power), 9-16 August 2017.

The beneficiary has recently started a hydroponics project on a different location on the Domaine. The hydroponics system has a heat demand during winter months, which is currently supplied with a propane fuelled hot water boiler. In the future, the hydroponics system may be moved to the biogas site if there is a match between hot water demand and availability from the biogas CHP unit.

1.4.2.5 Project Functionality

On the basis of the feedstock composition, daily biogas production potential is estimated at 144 Nm^3/d during summertime and 257 Nm^3/d during wintertime. It is the intention to use the biogas for the production of electricity, to cover the base demand at the Domaine outside the operating hours of the PV system. To this end, the generator will be grid-connected. Typical operating mode of the biogas system would be to produce 20-25kWe continuously, for 10-12 hours per day during summer time and for 16-18 hours per day during winter time.

The digester is to be constructed near the composting site. The effluent is to be mechanically separated: the solid fraction is to be composted and the liquid fraction is to be processed further (e.g. in a drying bed).

1.4.2.6 System Components

Over-all, the scope of supply concerns the provision, installation and startup of a turn-key biogas electricity plant, including the following plant components:

1. A heated anaerobic digester (CSTR), heated and stirred, running in the mesophilic temperature range, complete with feeding system, heating system, agitation, and gas collection/ storage.
2. A containerized CHP unit producing 20-25 kWe continuously during at least 10 h/d during summertime and at least 16 h/d during wintertime.
3. Biogas treatment system capable of bringing the biogas to CHP unit at the conditions required by the CHP.
4. System monitoring and control facilities required for controlling biogas plant equipment and for measuring and recording of gas production and electricity production.
5. A flare for burning off excess biogas.
6. A mechanical separator for the digester effluent.
7. All piping and cabling required for connecting the different plant components and for connecting the system to the grid.
8. Spare parts and consumables for 2 years of plant operation.

Bidder shall include in his bid full data sheets of all components, in particular:

- CHP unit
- Double gas membrane
- Mixers and pumps
- Flare and gas blower
- Control and monitoring equipment
- Mechanical separator

1.4.2.7 Technical Specifications

1.4.2.7.1 Operating conditions

In case of grid power interruptions, the system should operate such that no unsafe situations can occur without the need of a backup generator.

1.4.2.7.2 Digester including (internal) gas storage

- Heated and stirred digester, operating in the mesophilic temperature range (35-38°C).
- Minimum retention time 45 days (~400m^3 digester volume).
- Heating to be done using heat from CHP (available 10-18 hours per day depending on season). Heating distribution system is to be included in the digester.
- Digester insulation for minimizing heat loss (<0.3 $W/m^2.K$).
- Temperature sensors for reading internal digester temperature.

- Active/mechanical mixing in the system for heat distribution and for avoiding scum layer formation. Submersible agitators and submersible pumps should be intrinsically safe according to DIN EN 50020:2003-8, and have a degree of protection IP68 according to EN 60529.
- Feeding system for feeding the specified liquid and solid feedstocks into the digester. Alternatively, a mixing pit for combining the different feedstocks may be proposed, with a long shaft macerator pump for mixing / homogenization of feedstocks and feeding to the digester. Macerator pump should be able to handle straw and separated organic waste.
- Double membrane cover for biogas collection and internal storage. Storage capacity should be sufficient for storing all gas during hours of CHP standstill (>100m^3). Typical gas pressure will be in the order of 2-3 mbar. Height volume indicator should be included. Outer membrane should be made of high-frequency welded fabric-reinforced PVC (thickness >0.9kg/m^2), tear strength > 500N/5cm or tensile strength >250N/5cm; permeability with regard to methane <1000cm^3/m^2/d/bar, resistant to high UV radiation. Suitability for biogas applications should be certified by independent certification body (e.g. TUV or KIWA or similar).
- Air dosing system for biological desulphurization.
- (Mechanical) under- and overpressure valve.
- Valve for sample taking.
- Minimum guarantee period of 4 years for the double membrane gas holder.

1.4.2.7.3 Biogas CHP unit

- Electrical capacity 35-40 kVA (28-32kW continuous power rating)
- Minimum acceptable biogas methane content 55%.
- Electrical efficiency >30% at rated power.
- CHP engine should be an original gas (spark plug) engine. The CHP unit shall be suitable for grid supply / synchronisation.
- Gas blower for increasing the gas pressure to minimum level specified by CHP. Minimum flow rate at required pressure 25m^3/h. ATEX rating Ex II 2G.
- CHP heat from engine water jacket will be made available for digester heating, in order to assure the required digester temperature (35-38°C). Any excess heat will be dissipated by cooling unit and/or made available for use on-site. It is expected that in winter time, all available heat will be required for digester heating.
- An emergency shutdown button outside the generator housing shall be provided as well as a valve for closing the gas supply. This closing valve should automatically close when engine is shut down.
- The system shall have adjustable over- and under voltage protection. Operational limits shall be set in accordance to CHP generator specifications.
- The generator should record at least cumulative generator operating hours and cumulative gross electricity production (kWh).
- Exhaust emission limits according to German TA luft (2002) or similar.
- The CHP system shall be built into a steel shipping container. Noise insulation measures will be applied to the CHP unit or to the container, such that the noise level at 7 metres is below 80 dB.

- Minimum guarantee of 2 years or 8,000 hours of operation shall be provided; bidder shall provide verifiable references of units in operation under similar conditions upon request of UNDP.

1.4.2.7.4 Biogas treatment

- Gas shall be pre-treated to fully comply with the stated requirements of the CHP engine. Gas treatment shall include at least:
  - Desulphurization by biological means (i.e. immobilization in the digester by air injection), however it is the responsibility of the contractor to implement desulphurization by physical means (i.e. adsorption with activated carbon) if the biological treatment does not ensure a H2S level not exceeding the maximum level specified by the CHP manufacturer
  - Condensate removal unit.
- Quantities of consumables required for operation of biogas treatment systems will be specified in the bid.

1.4.2.7.5 Control and monitoring equipment

- Electrical control panel for delivered installation for e.g. mixers, pumps and generator.
- Electricity meter (kWh), (400V, I_{nom} >50A, accuracy <1%) measuring the net electricity generated by the biogas plant.
- Gas flow meter (m^3), measuring the cumulative gas produced by the biogas plant (before split to generator and emergency flare). The gas flow meter should have a measuring range between 3-30 m^3/h and an accuracy of ±2%. Compliant with EN12261:2002. ATEX classification Ex ia IIC T4 Gb
- Gas analyser for determining the main biogas constituents: CH_4 (0-100%vol), CO_2 (0-100%vol), O_2 (0-25%vol), H_2S (0-2000ppm or higher). Accuracy ±1.5% from measuring range (CH_4/CO_2), ±3% of measuring range (O_2/H_2S). ATEX classification II2G Ex d e ib IIB T4 Gb.
- Heat meter, measuring the heat consumed by the digester. Compliant with EN 1434:2007. Temperature range 40-100 degC, accuracy of ±2%.

1.4.2.7.6 Switch board

- A switchboard for the regulation of internal and external energy usage, as well as grid synchronization equipment, shall be installed inside the CHP container. The sizes of the electrical groups for internal uses are to be defined by the bidder.
- All electrical equipment should be connected to a common grounding system, which is connected to ground electrode.
- The switch board shall be connected with the nearest switch board of the project beneficiary. Supply and installation of a 200m ground cable (copper 4x35mm2) shall be included in the bid.

1.4.2.7.7 Flare

- A (manually operated) emergency flare should be equipped to flare any surpluses of biogas. The capacity of the flare should be dimensioned to handle the expected biogas production (>15 m^3/h) and digester working pressure (<2mbar).
- The flare should be equipped with a flame arrester
- It must be possible to operate the flare independently from grid- or generator power, i.e. it should have battery powered ignition.
- The flare should be placed at least 10 metres from the biogas system and at least 5 metres from other buildings.

1.4.2.7.8 Mechanical separator

- A mechanical separator shall be installed for post-processing of the digester effluent (estimated DM content 8-10%).
- Processing capacity: >5 tonnes/hour.
- DM content liquid fraction: <6%, DM solid fraction: >20%.
- If required for separator operation, a digester effluent tank will be installed with a capacity of holding 1 day production of digestate.

1.4.2.7.9 All related/required infrastructure e.g. piping, cables etc.

- Gas piping shall be resistant to corrosion (e.g. PE or PVC) and dimensioned to handle occurring pressure (max 50mbar). Characteristics of used piping should be defined by bidder e.g. material, dimensions, overpressure, specific colour, flow direction.
- All gas piping shall be pressure-tested prior to be taken into operation according to NEN 2088 or similar standard.
- Gas sampling ports will be placed for sampling of raw biogas and treated biogas.
- All cabling shall be dimensioned according to their design current, length and overload protection devices, according to NEN 1010 or similar standard. Calculations to be provided by bidder.

1.4.3. Site 2: BGLB 1.2 Masri Livestock Aabdeh (Akkar)

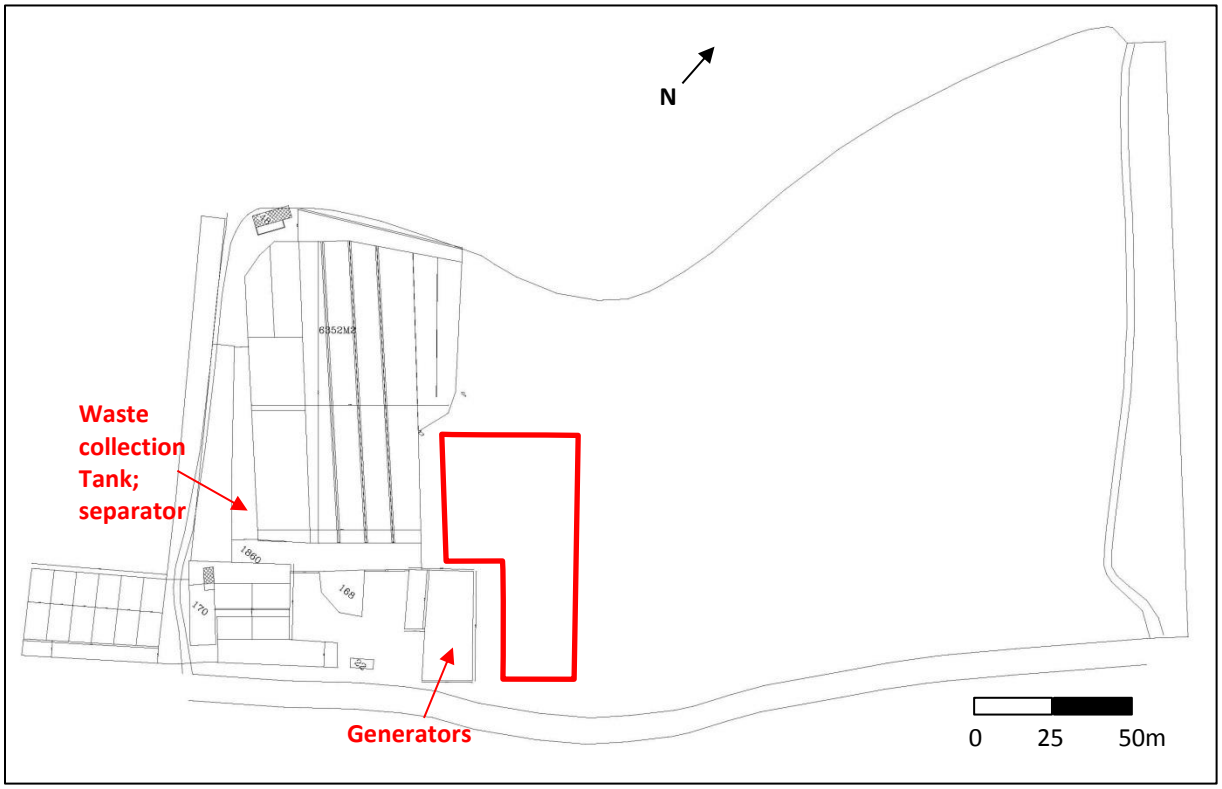
1.4.3.1 Site description

The project Beneficiary is Masri livestock, a family-owned cattle rearing farm located in Aabdeh, Akkar. The company has a holding capacity of approx. 2000 heads of cattle, and also has a small slaughtering unit on the premises. The company is located some 1km from the coast, approx. 15km Northeast from Tripoli. It is well accessible, a few hundred metres from a main road.

On the basis of the available feedstock, Masri could cater a medium-scale biogas plant that could produce a multiple of the energy consumed at the farm. However, the owner has indicated not to consider supplying electricity to the grid, but rather to cover the energy demand of the farm only. Due to the weak grid, electricity for the farm is presently being produced with diesel generators.

There is a large terrain available next to the generator room; the indicative space for the biogas plant is indicated in the map below.

GPS: 34°31’46.8”N, 35°59’56.9”E, altitude 0 metres



Overview of Masri livestock, indicating the proposed biogas plant location



Proposed location for the biogas plant – showing the Northeast wall of the generator room

1.4.3.2 Climate

Annual average temperature at the site is approx. 20°C.
Monthly averages are:

- Highest in the months of July August (27°C)
- Lowest in January (13°C).

1.4.3.3 Feedstocks

The main feedstock available at Masri is cattle manure, mixed with small quantities of slaughterhouse waste (rumen contents). The waste is collected in an underground pit, and subsequently mechanically separated in a solid fraction and a liquid fraction. The solid fraction is sold or used as bedding on the farm; the liquid fraction is flushed away. As the biogas plant is intended for the production of farm electricity only, only part of the available feedstock will be used. As such, it is the intention to use (part of) the liquid fraction for the production of biogas.

The feedstock properties are as follows:

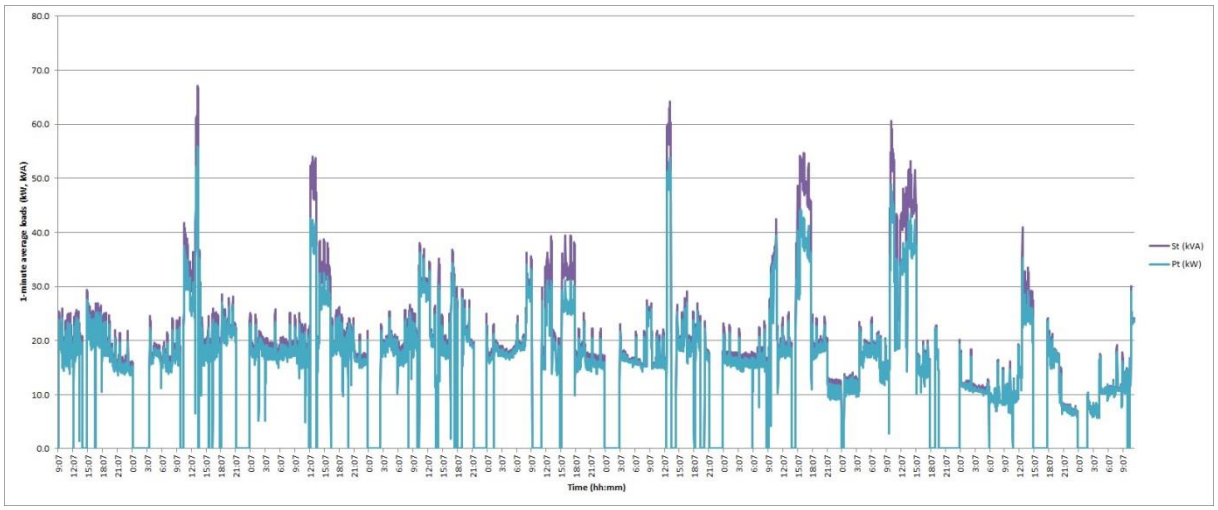
- Maximum available quantity: approx. 50 t/d
- Dry matter content: 6%
- Organic dry matter content: 85%

- Estimated biogas production potential: 400 Nm^3/tODM

On the basis of the electricity / biogas demand on the farm (see below), the feedstock requirements for de biogas system are estimated at 15.1 t/d.

1.4.3.4 Energy demand

The average total electricity demand on the farm is approx. 450 kWh/d, which is mainly used for pumping, refrigeration and feed preparation. A load graph showing 1-minute averages during 9 days of operation is shown in the figure below.



1-minute average active and apparent load at Masri livestock (5-14September 2017)

Analysis of the data shows the following:

- Maximum 1-minute average load is approx 67kVA (56kW)
- Average load is 18.9 kW (corrected for downtime – 17% of the time)

The farm uses diesel for electricity production, as the grid is too weak for covering the electric loads. Most of the day and night a 60kVA generator is running; when heavier equipment (for feed production) is being used, a 100kVA generator is used. This is typically less than 2 hours per day. Average total diesel consumption is 200 litres per day

1.4.3.5 Project functionality

It is proposed to use the biogas for covering the smaller loads only, and to continue using diesel for supplying the high loads. This way, more than 90% of the electricity demand can be produced using biogas. A biogas generator will thus be used continuously, connected to the electricity system of the farm. The heavier equipment on the farm will be connected to a diesel generator on a separate branch; i.e. if the heavier equipment is operated, both the diesel generator and the biogas generator will be running, each powering their own loads. When the diesel generator is running, some biogas can be supplied to the engine with the combustion air, thus reducing the diesel consumption.

The required electricity production from biogas is as follows:

- Island operation (24/7)
- Average load 17.2 kW (typically varying between 15-25kW)
- 1-minute average maximum load is approximately 30kVA (27kW)
- Expected incidental peak loads up to 40kVA (35kW)
- Average daily electricity production is 420 kWh/d

On the basis of the above, daily biogas demand (including 10% margin) is estimated at 308Nm^3/d.

Because of the mild climate, the space availability and the nature of the feedstock, it is proposed to use one or several bag type digesters without agitation, but with a rudimentary floor heating system for keeping the digester temperature above 20°C at all times.
Indicative total digester volume would be 900m^3.

The digester should be directly connected to the existing mechanical separator which is located next to the waste collection pit, so that the liquid fraction can be piped directly to the digester under gravity. The digester outlet shall be connected to the existing disposal system for the liquid fraction coming from the separator.

1.4.3.6 System components

Over-all, the scope of supply concerns the provision, installation and start-up of a turn-key biogas electricity plant, including the following plant components:

- A low-cost anaerobic digester in PVC or HDPE, running in the mesophilic temperature range, with internal gas collection / storage.
- A biogas generator operating in island mode, continuously, producing on average 17.2 kW with incidental peaks up to 35kW.
- Biogas treatment system capable of bringing the biogas to the generator at the conditions required by the generator engine.
- System monitoring and control facilities required for controlling biogas plant equipment and for measuring and recording of gas production and electricity production.
- A flare for burning off excess biogas.
- All piping and cabling required for connecting the plant to the existing manure management system.
- Spare parts and consumables for 2 years of plant operation.

Bidder shall include in his bid full data sheets of all components, in particular:

- CHP unit
- Digester bag, liner and/or cover material
- Pumps
- Flare and gas blower
- Control and monitoring equipment

1.4.3.7 Technical Specifications

1.4.3.7.1 Operating conditions

- The biogas plant shall be fully operational in the following climate conditions:
  - Temperature: -10 to 45°C
  - Relative humidity: 90-95%
  - Wind speeds: up to 120 km/h
  - High ultraviolet radiation
  - Rural environment with presence of dust and insect.
- In case of biogas CHP shutdown, the system shall operate on an (existing) diesel generator. However, the system should operate such that no unsafe situations can occur in case of power interruptions up to 2 hours.
- Incidental stray bullets could potentially hit the digester, particularly in the area where Masri Farm is located. The bidder should indicate in the design how the digester would be protected from damage (particularly from stray bullets that may come from all sides and from above) and/or how damage can be repaired.

1.4.3.7.2 Digester including (internal) gas storage

- Bag- or (fully closed) lagoon type digester operating in the mesophilic temperature range (20-38°C). The digester can be a single unit or multiple smaller units.
- Materials: flexible fiber- reinforced PVC (UV resistant), >1.2kg/m^2, or HDPE sheeting (thickness 1mm). High-frequency welded.
- Minimum retention time 60 days (~900m^3 digester volume).
- Digester heating system for maintaining temperature above 20°C at all times, by means of Digester floor heating using PEX tubing. The required heat will be supplied by the CHP unit. Maximum water temperature 40°C.
- Gas storage capacity inside the digester, sufficient for storing all gas for 12 hours in case of generator standstill (>180m^3). Working pressure 0-5mbar, allowable maximum pressure 20mbar.
- The digester inlet will be connected to the existing manure separator outlet by underground pipe. Transport of the liquid effluent by gravity.
- Pump (15m^3/h, 2-3hp) and underground piping for pumping the digester effluent to the existing wastewater disposal system at the manure separator.
- Air dosing system for biological desulphurization.
- (Mechanical) overpressure valve.

1.4.3.7.3 Biogas CHP unit

- Electrical capacity 42-45kVA (34-36kW prime power rating).
- Minimum acceptable biogas methane content 55%.
- Electrical efficiency at rated maximum load >30%.
- CHP engine should be an original gas (spark plug) engine. It shall be fit for continuous (24/7) island operation.
- Gas blower for increasing the gas pressure to minimum level specified by CHP and the flare. Minimum flow rate at required pressure 30m^3/h. ATEX rating Ex II 2G.

- CHP heat from engine water jacket will be made available for digester heating, in order to assure the required digester temperature (>20°C). Any excess heat will be dissipated by cooling unit and/or made available for use on-site.
- An emergency shutdown button outside the generator housing shall be provided as well as a valve to close the gas supply. This closing valve should automatically close when engine is shut down.
- The system shall have adjustable over- and under voltage protection. Operational limits shall be set in accordance to generator requirements (to be specified in the bid).
- The generator should record at least cumulative generator operating hours and cumulative gross electricity production (kWh).
- Exhaust emission limits according to German TA luft (2002) or similar.
- The CHP system shall be installed in the existing generator house. Noise insulation measures will be applied to the CHP unit, such that the noise level at 7 metres is below 80 dB.

1.4.3.7.4 Biogas treatment

- Gas shall be pre-treated to fully comply with the stated requirements of the CHP engine. Gas treatment shall include at least:
  - Desulphurization by biological means (i.e. immobilization in the digester by air injection), however it is the responsibility of the contractor to implement desulphurization by physical means (i.e. adsorption with activated carbon) if the biological treatment does not ensure a H2S level not exceeding the maximum level specified by the CHP manufacturer
  - Condensate removal unit.
- Quantities of consumables required for operation of biogas treatment systems will be specified in the bid.

1.4.3.7.5 Control and monitoring equipment

- Electrical control panel for delivered installation for CHP unit, pumps and other electrical equipment.
- Electricity meter (kWh), (400V, I_{nom} >65A, accuracy <1%) measuring the net electricity generated by the biogas plant.
- Gas flow meter (m^3), measuring the cumulative gas produced by the biogas plant (before split to generator and emergency flare). The gas flow meter should have a measuring range between 3-30 m^3/h and an accuracy of ±2%. Compliant with EN12261:2002. ATEX classification Ex ia IIC T4 Gb
- Gas analyser for determining the main biogas constituents: CH_4 (0-100%vol), CO_2 (0-100%vol), O_2 (0-25%vol), H_2S (0-2000ppm or higher). Accuracy ±1.5% from measuring range (CH_4/CO_2), ±3% of measuring range (O_2/H_2S). ATEX classification II2G Ex d e ib IIB T4 Gb.

1.4.3.7.6 Switch board

- A switchboard for the regulation of internal and external energy usage shall be installed. The sizes of the electrical groups for internal uses are to be defined by the bidder.

- All electrical equipment should be connected to a common grounding system, which is connected to ground electrode.
- The switch board shall be connected with the nearest switch board of the project beneficiary. Supply and installation of 75m ground cable (copper 4x16mm2) shall be included in the bid.

1.4.3.7.7 Flare

- A (manually operated) emergency flare should be equipped to flare biogas in case of CHP unit shutdown or biogas over production. The capacity of the flare should be dimensioned to handle the expected biogas production rate (>15 m^3/h) at the rated pressure of the gas blower that is supplied with the CHP unit.
- The flare should be equipped with a flame arrester.
- It must be possible to operate the flare independently from grid- or generator power, i.e. it should have battery powered ignition.
- The flare should be placed at least 10 metres from the biogas system and at least 5 metres from other buildings.

1.4.3.7.8 All related/required infrastructure e.g. cables, pipes etc.

- Gas piping shall be resistant to corrosion (e.g. PE or PVC) and dimensioned to handle occurring pressure (max 50mbar). Characteristics of used piping should be defined by bidder e.g. material, dimensions, overpressure, specific colour, flow direction.
- All gas piping shall be pressure-tested prior to be taken into operation according to NEN 2088 or similar standard.
- Gas sampling ports will be placed for sampling of raw biogas and treated biogas.
- All cabling shall be dimensioned according to their design current, length and overload protection devices, according to NEN 1010 or similar standard. Calculations to be provided by bidder.

1.4.4 Data analysis and evaluation

The following data will be collected for general plant performance analysis:

- Biogas produced by digester (m^3/d)
- Biogas composition (CH_4, CO_2, H_2S)
- Hours of generator operation (h/d)
- Electricity produced by generator (kWh/d)
- Electricity consumed by biogas plant (kWh/d)
- Heat consumed by the biogas plant (MJ/d)

1.4.5 Verification Tests

A plant pre- and post startup checklists will be provided by the Contractor for approval by the respective beneficiary and UNDP. The checklists will include e.g.

- Pre-startup checks
  - Digester gross volume (as per sections 1.4.2.7.2 and 1.4.3.7.2)
  - Gas storage volume (as per sections 1.4.2.7.2 and 1.4.3.7.2)
  - Plant equipment functioning: agitation, feeding, flare, gas tightness (as detailed in sub-sections of 1.4.2.7 and 1.4.3.7)

- Post-startup tests
  - Digester temperature stability (as per sections 1.4.2.7.2 and 1.4.3.7.2)
  - Gas storage volume (as per sections 1.4.2.7.2 and 1.4.3.7.2)
  - Generator gross output (as per sections 1.4.2.5 and 1.4.3.5)
  - Generator efficiency (as per sections 1.4.2.7.3 and 1.4.3.7.3)
  - Plant electricity consumption (as per sections 1.4.2.5 and 1.4.3.5)
  - Gas conditions before engine use (as per sections 1.4.2.5 and 1.4.3.5; 1.4.2.7.4 and 1.4.3.7.4)
  - Separator functioning (as per sections 1.4.2.7.8)

A draft template of the testing procedures and sheets shall be submitted as part of Deliverable 1 by the Contractor to UNDP's representative for review and approval.

1.4.6 Safety issues

1.4.4.1. Protection against fire and explosions

Protection against gas explosion and fire shall be achieved by defining and clearly marking EX zoning around the biogas plant; using electrical equipment with appropriate ATEX classification according to European Directive 2014/34/EU; by applying mechanical ventilation of any indoor spaces where biogas could potentially build up; by applying insulation materials with appropriate fire retardant properties; by observing safety distances between gas storage and adjacent buildings as recommended by the German Fachverband Biogas (Guidelines for the safe use of biogas technology)

A fire-fighting extinguisher for electrical fires shall be provided attached to the equipment cabinet.

1.4.4.2 Protection against gas poisoning

Protection against gas poisoning (from H_2S, CO_2 and/or NH_3) shall be achieved by avoiding the accumulation of biogas in confined areas, principally by applying mechanical ventilation of any indoor spaces where biogas could potentially build up.

1.4.4.3 Protection against mechanical hazards (falling, impact, crushing, cutting)

Protection against mechanical hazards shall be achieved by applying protective covers to rotating machinery, and by securing openings of feeding systems where people could fall in.

1.4.4.4 Protection against electric shock

Protection against electric shock shall be achieved by best practices and international standards together with components and systems classified as Class II or better.

For the a.c. side, protection by double or reinforced insulation between any live conductor and any earthed or exposed conductive part is required.

1.4.4.5. Protection against over current

Protection against over current in cabling connections

1.4.4.6. Protection against effects of lightning and surge over-voltage

The protection level of the electric installations is important for human being, facility and equipment safety reasons. The protection level of the electric installations depends on many aspects like the type of installation, the proximity to the grid transformer, etc.

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:

Delivery Term [INCOTERMS 2010]	☒ DDP, Delivered Duty Paid: Delivery at Place and Customs Paid For details, kindly refer to the price schedule in section 7.	
Exact Address of Delivery/Installation Location	Site 1: • BGLB 1.1 Taanayel Arc En Ciel – Bekaa – Lebanon Site 2 : • BGLB 1.2 Masri Livestock – Aabdeh (Akkar) - Lebanon	
Mode of Transport Preferred	☒ AIR	☒ LAND
UNDP Preferred Freight Forwarder, if any	Not Applicable	
Distribution of shipping documents *(if using freight forwarder)*	Not Applicable	
Delivery Date	The overall term of execution of this contract is spread over 8 months, effective from contract signature date. This includes the delivery and supply of the equipment to site, the installation of the equipment, the testing of the assembled systems, the training of personnel and the commissioning and hand-over.	
Customs, if needed, clearing shall be done by:	☒ Contractor	
Ex-factory / Pre-shipment inspection	Not Applicable	
Inspection upon delivery	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Installation Requirements	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Testing Requirements	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Scope of Training on Operation and Maintenance	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Commissioning	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Technical Support Requirements	Refer to Section 3a- Schedule of Requirements and Technical Specifications	
Payment Terms	☒ The payment currency is USD, and the payments will be made in instalments in line with each completed and approved deliverable *(refer to the required deliverables in Section 3a)*:	

	Deliverable 1: 20 % of total project cost. Deliverable 2: 40 % of total project cost. Deliverable 3-4: 40 % of total project cost.
Conditions for Release of Payment	☒ As per the approved and accepted deliverable and upon validation from UNDP supervising team.
After-sale services required	☒ Warranty on Parts and Labor for the systems' components: Combined Heat and Power (CHP) Unit: 2 years or 8,000 operating hours (whichever comes first). Double membrane gas holder: 4 years. Digester fabric: 2 years. All electric and mechanical equipment: 2 years. ☒ Warranty on complete system: If, within Twenty Four (24) months after date of issuance of the satisfactory completion form, any defects are discovered or arise in the normal course of usage, the Contractor shall immediately remedy the defect either by replacement or by repair. The repair or replacement shall be within the period that will be specified by UNDP Project Manager; of a maximum of two weeks.
All documentations, including catalogs, instructions and operating manuals, shall be in this language	☒ English or; ☒ French

Section 4: Bid Submission Form[2]

(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: **UNDP Lebanon, Procurement Unit**

Dear Sir/Madam:

We, the undersigned, hereby offer to supply the goods and related services required for **Design, supply and commissioning of two Biogas systems in Domaine Taanayel Arc en Ciel Domaine - Taanayel, Bekaa and Masri Livestock - Aabdeh, Akkar - Lebanon** in accordance with your Invitation to Bid dated October 12, 2017. 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.

We remain,

[2] *No deletion or modification may be made in this form. Any such deletion or modification may lead to the rejection of the Bid.*

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 Form[3]

Date: *[insert date (as day, month and year] of Bid Submission*]
ITB No.: LEB/CO ITB/187/17

Page _____of _____ pages

1. Bidder's Legal Name *[insert Bidder's legal name]*		
2. In case of Joint Venture (JV), legal name of each party: *[insert legal name of each party in JV]*		
3. Actual or intended Country/ies of Registration/Operation: *[insert actual or intended Country of Registration]*		
4. Year of Registration in its Location: *[insert Bidder's year of registration]*		
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:*[insert Bidder's legal address in country of registration]*		
9. Value and Description of Top three (3) Biggest Contract for the past five (5) 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: *[insert Authorized Representative's name]* Address: *[insert Authorized Representative's Address]* Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]* Email Address: *[insert Authorized Representative's email address]*		
13. Are you in the UNPD List 1267.1989 or UN Ineligibility List? ☐ YES or ☐ NO		

[3] *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)[4]

Date: *[insert date (as day, month and year) of Bid Submission*]
ITB No.: LEB/CO ITB/187/17

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1. Bidder's Legal Name: *[insert Bidder's legal name]*		
2. JV's Party legal name: *[insert JV's Party legal name]*		
3. JV's Party Country of Registration: *[insert JV's Party country of registration]*		
4. Year of Registration: *[insert Party's year of registration]*		
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: *[insert Party's legal address in country of registration]*		
9. Value and Description of Top three (3) Biggest Contract for the past five (5) 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.		

[4] *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 Form[5]

Design, supply and commissioning of two Biogas systems in Domaine Taanayel Arc en Ciel Domaine - Taanayel, Bekaa and Masri Livestock - Aabdeh, Akkar - Lebanon

Reference: LEB/CO ITB/ 187/17

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)

[5] *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: *Highlight experience in the region and on similar projects.*		
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:**
e.g. June 2010-January 2011		
Etc.		
Etc.		
References (minimum of 3):	*Name* *Designation* *Organization* *Contact Information – Address; Phone; Email; etc.*	

Declaration:

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.

_____

_____

Signature of the Nominated Team Leader/Member Date Signed

Section 7: Price Schedule Form[6]

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 site. Separate figures must be provided for each functional grouping or category, if any.

The bidder is requested to use the below tables in preparing the Price Schedule.

Site 1: BGLB 1.1 Domaine Taanayel Arcenciel- Taanayel- Lebanon				
Items #	Description of Item	units	QTY	Total Price (Supply & Install.) (US $)
1	A Heated Anaerobic Digester (CSTR), indicative volume 400m3, complete with feeding system, heating system, agitation, and gas collection/ storage.	m3		
2	Biogas CHP unit 35-40kVA, original gas (spark plug) engine with water jacket to heat the digester (with necessary earth connection) and installation.	KVA		
3	Biogas Treatment System	units	1	
4	Flare	unit	1	
5	Mechanical Separator	unit	1	
6	Mechanical, Electrical and Civil works (all piping and cabling required for connecting the different plant components and for connecting the system to the grid)	units	1	
7	System monitoring and control	units	1	
8	Documentation and training, including as-built drawings, technical manuals, on-site training and safety labelling.	unit	1	

Total Price US$ Site 1 Domaine Taanayel Arc en Ciel- Taanayel- Lebanon (DDP, exclusive of VAT)	
VAT (10%) US$ (if applicable)	
Total Price US$ Site 1 Domaine Taanayel Arc en Ciel- Taanayel- Lebanon (DDP, inclusive of VAT)	

[6] *No deletion or modification may be made in this form. Any such deletion or modification may lead to the rejection of the Bid.*

Site 2: BGLB 1.2 Masri Livestock – Aabdeh (Akkar) - Lebanon				
Items #	Description of Item	units	QTY	Total Price (Supply & Install.) (US $)
1	Anaerobic Digester Lagoon type, indicative volume 900m3, with floor heating system	m3		
2	Biogas CHP unit 42-45kVA, original gas (spark plug) engine with water jacket to heat the digester (with necessary earth connection) and installation.	kVA		
3	Biogas Treatment System	units	1	
4	Flare	unit	1	
5	Mechanical, Electrical and Civil works (all piping and cabling required for connecting the different plant components and for connecting the system to the grid)	units	1	
6	System monitoring and control	units	1	
7	Documentation and training, including as-built drawings, technical manuals, on-site training and safety labelling.	unit	1	

Total Price US$ Site 2 Masri Livestock- Aabdeh (Akkar) - Lebanon (DDP, exclusive of VAT)	
VAT (10%) US$ (if applicable)	
Total Price US$ Site 2 Masri Livestock- Aabdeh (Akkar) - Lebanon (DDP, inclusive of VAT)	

GRAND TOTAL FOR THE TWO SITES:

	Total Price US$ (exclusive of VAT)	**VAT (10%) US$ (if applicable)**	**Total Price US$ (inclusive of VAT)**
Site 1: BGLB 1.1			
Site 2: BGLB 1.2			
GRAND TOTAL PRICE			

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 USD 11,000.00 (US Dollars Eleven Thousand Only), 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 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 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, including the defect liability period.

SIGNATURE AND SEAL OF THE GUARANTOR BANK

Date .....

Name of Bank .....

Address .....

Section 10: General Terms and Conditions for Civil Works

1. Definitions
2. Singular and Plural
3. Headings or Notes
4. Legal Relationships
5. General Duties/Powers of Engineer
6. Contractor's General Obligations/Responsibilities
7. Assignment and Subcontracting
8. Drawings
9. Work Book
10. Performance Security
11. Inspection of Site
12. Sufficiency of Tender
13. Programme of Work to be Furnished
14. Weekly Site Meeting
15. Change Orders
16. Contractor's Superintendence
17. Contractor's Employees
18. Setting-Out
19. Watching and Lighting
20. Care of Works
21. Insurance of Works, Etc.
22. Damage to Persons and Property
23. Liability Insurance
24. Accident or Injury to Workmen
25. Remedy on Contractor's Failure to Insure
26. Compliance with Statutes, Regulations, Etc.
27. Fossils, Etc.
28. Copyright, Patents and Other Proprietary Rights, and Royalties
29. Interference With Traffic and Adjoining Properties
30. Extraordinary Traffic and Special Loads
31. Opportunities for Other Contractors
32. Contractor to Keep Site Clean
33. Clearance of Site on Substantial Completion
34. Labour
35. Returns of Labour, Plant, Etc.
36. Materials, Workmanship and Testing
37. Access to Site
38. Examination of Work Before Covering Up
39. Removal of Improper Work and Materials
40. Suspension of Work
41. Possession of Site
42. Time for Completion
43. Extension of Time for Completion
44. Rate of Progress
45. Liquidated Damages for Delay

46. Certificate of Substantial Completion
47. Defects Liability
48. Alterations, Additions and Omissions
49. Plant, Temporary Works and Materials
50. Approval of Materials, Etc., Not Implied
51. Measurement of Works
52. Liability of the Parties
53. Authorities
54. Urgent Repairs
55. Increase and Decrease of Costs
56. Taxation
57. Blasting
58. Machinery
59. Temporary Works and Reinstatement
60. Photographs and Advertising
61. Prevention of Corruption
62. Date Falling on Holiday
63. Notices
64. Language, Weights and Measures
65. Records, Accounts, Information and Audit
66. Force Majeure
67. Suspension by the UNDP
68. Termination by the UNDP
69. Termination by the Contractor
70. Rights and Remedies of the UNDP
71. Settlement of Disputes
72. Privileges and Immunities
73. Security
74. Audit and Investigations
75. Anti-Terrorism

1. DEFINITIONS

For the purpose of the Contract Documents the words and expressions below shall have the following meanings:

a) "Employer" means the United Nations Development Programme (UNDP).

b) "Contractor" means the person whose tender has been accepted and with whom the Contract has been entered into.

c) "Engineer" means the person whose services have been engaged by UNDP to administer the Contract as provided therein, as will be notified in writing to the Contractor.

d) "Contract" means the written agreement between the Employer and the Contractor, to which these General Conditions are annexed.

e) "The Works" means the works to be executed and completed under the Contract.

f) "Temporary Works" shall include items to be constructed which are not intended to be permanent and form part of the Works.

g) "Drawings" and "Specifications" mean the Drawings and Specifications referred to in the Contract and any modification thereof or addition thereto furnished by the Engineer or submitted by the Contractor and approved in writing by the Engineer in accordance with the Contract.

h) "Bill of Quantities" is the document in which the Contractor indicates the cost of the Works, on the basis of the foreseen quantities of items of work and the fixed unit prices applicable to them.

i) "Contract Price" means the sum agreed in the Contract as payable to the Contractor for the execution and completion of the Works and for remedying of any defects therein in accordance with the Contract.

j) "Site" means the land and other places on, under, in or through which the Works or Temporary Works are to be constructed.

2. SINGULAR AND PLURAL

Words importing persons or parties shall include firms or companies and words importing the singular only shall also include the plural and vice versa where the context requires.

3. HEADINGS OR NOTES

The headings or notes in the Contract Documents shall not be deemed to be part thereof or be taken into consideration in their interpretation.

4. LEGAL RELATIONSHIPS

The Contractor and the sub-contractor(s), if any, shall have the status of an independent contractor vis-à-vis the Employer. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Engineer and the Contractor, but the Engineer shall, in the exercise of his duties and powers under the Contract, be entitled to performance by the Contractor of its obligations, and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Employer or the Engineer and any subcontractor(s) of the Contractor.

5. GENERAL DUTIES/POWERS OF ENGINEER

a) The Engineer shall provide administration of Contract as provided in the Contract Documents. In particular, he shall perform the functions hereinafter described.

b) The Engineer shall be the Employer's representative vis-à-vis the Contractor during construction and until final payment is due. The Engineer shall advise and consult with the Employer. The Employer's instructions to the Contractor shall be forwarded through the Engineer. The Engineer shall have authority to act on behalf of the Employer only to the extent provided in the Contract Documents as they may be amended in writing in accordance with the Contract. The duties, responsibilities and limitations of authority of the Engineer as the Employer's representative during construction as set forth in the Contract shall not be modified or extended without the written consent of the Employer, the Contractor and the Engineer.

c) The Engineer shall visit the Site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Works and to determine in general if the Works are proceeding in accordance with the Contract Documents. On the basis of his on-site observations as an Engineer, he shall keep the Employer informed of the progress of the Works.

d) The Engineer shall not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Works or the Temporary Works. The Engineer shall not be responsible for or have control or charge over the acts or omissions of the Contractor (including the Contractor's failure to carry out the Works in accordance with the Contract) and of Sub-contractors or any of their agents or employees, or any other persons performing services for the Works, except if such acts or omissions are caused by the Engineer's failure to perform his functions in accordance with the contract between the Employer and the Engineer.

e) The Engineer shall at all times have access to the Works wherever and whether in preparation or progress. The Contractor shall provide facilities for such access so that the Engineer may perform his functions under the Contract.

f) Based on the Engineer's observations and an evaluation of the documentation submitted by the Contractor together with the invoices, the Engineer shall determine the amounts owed to the Contractor and shall issue Certificates for Payment as appropriate.

g) The Engineer shall review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformity with the design concept of the Works and with the provisions of the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

h) The Engineer shall interpret the requirements of the Contract Documents and judge the performance thereunder by the Contractor. All interpretations and orders of the Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. Either party may make a written request to the Engineer for such interpretation. The Engineer shall render the interpretation necessary for the proper execution of the Works with reasonable promptness and in accordance with any time limit agreed upon. Any claim or dispute arising from the interpretation of the Contract Documents by the Engineer or relating to the execution or progress of the Works shall be settled as provided in Clause 71 of these General Conditions.

i) Except as otherwise provided in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract nor to order any work involving delay in completion of the Works or any extra payment to the Contractor by the Employer, or to make any variations to the Works.

j) In the event of termination of the employment of the Engineer, the Employer shall appoint another suitable professional to perform the Engineer's duties.

k) The Engineer shall have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act nor any reasonable decision made by him in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees, or any other person performing services for the Works.

l) The Engineer shall conduct inspections to determine the dates of Substantial Completion and Final Completion, shall receive and forward to the Employer for the Employer's review written warranties and related documents required by the Contract and assembled by the Contractor, and shall issue a final Certificate for Payment upon compliance with the requirements of Clause 47 hereof and in accordance with the Contract.

m) If the Employer and Engineer so agree, the Engineer shall provide one or more Engineer's Representative(s) to assist the Engineer in carrying out his responsibilities at the site. The Engineer shall notify in writing to the Contractor and the Employer the duties, responsibilities and limitations of authority of any such Engineer's Representative(s).

6. CONTRACTOR'S GENERAL OBLIGATIONS/RESPONSIBILITIES

6.1. Obligation to Perform in Accordance with Contract

The Contractor shall execute and complete the Works and remedy any defects therein in strict

accordance with the Contract, with due care and diligence and to the satisfaction of the Engineer, and shall provide all labor, including the supervision thereof, materials, Constructional Plant and all other things, whether of a temporary or permanent nature, required in and for such execution, completion and remedying of defects, as far as the necessity for providing the same is specified in or is reasonably to be inferred from the Contract. The Contractor shall comply with and adhere strictly to the Engineer's instructions and directions on any matter, touching or concerning the Works.

6.2 Responsibility for Site Operations

The Contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of construction, provided that the Contractor shall not be responsible, except as may be expressly provided in the Contract, for the design or specification of the Permanent Works or of any Temporary Works prepared by the Engineer.

6.3. Responsibility for Employees

The Contractor shall be responsible for the professional and technical competence of his employees and will select for work under this Contract, reliable individuals who will perform effectively in the implementation of the Contract, respect local customs and conform to a high standard of moral and ethical conduct.

6.4. Source of Instructions

The Contractor shall neither seek nor accept instructions from any authority external to the Employer, the Engineer or their authorized representatives in connection with the performance of his services under this Contract. The Contractor shall refrain from any action which may adversely affect the Employer and shall fulfill his commitments with fullest regard for the interest of the Employer.

6.5. Officials Not to Benefit

The Contractor warrants that no official of the Employer has been or shall be admitted by the Contractor to any direct or indirect benefit arising from this Contract or the award thereof. The Contractor agrees that breach of this provision is a breach of an essential term of the Contract.

6.6. Use of Name, Emblem or Official Seal of UNDP or the United Nations

The Contractor shall not advertise or otherwise make public the fact that he is performing, or has performed services for the Employer or use the name, emblem or official seal of the Employer or the United Nations or any abbreviation of the name of the Employer or the United Nations for advertising purposes or any other purposes.

6.7. Confidential Nature of Documents

All maps, drawings, photographs, mosaics, plans, reports, recommendations, estimates, documents and all other data compiled by or received by the Contractor under the Contract shall be the property

of the Employer, shall be treated as confidential and shall be delivered only to the duly authorized representative of the Employer on completion of the Works; their contents shall not be made known by the Contractor to any person other than the personnel of the Contractor performing services under this Contract without the prior written consent of the Employer.

7. ASSIGNMENT AND SUBCONTRACTING

7.1. Assignment of Contract

The Contractor shall not, except after obtaining the prior written approval of the Employer, assign, transfer, pledge or make other disposition of the Contract or any part thereof or of any of the Contractor's rights, claims or obligations under the Contract.

7.2. Subcontracting

In the event the Contractor requires the services of subcontractors, the Contractor shall obtain the prior written approval of the Employer for all such subcontractors. The approval of the Employer shall not relieve the Contractor of any of his obligations under the Contract, and the terms of any subcontract shall be subject to
and be in conformity with the provisions of the Contract.

7.3. Assignment of Subcontractor's Obligations

In the event of a subcontractor having undertaken towards the Contractor in respect of the work executed or the goods, materials, Plant or services supplied by such subcontractor for the Works, any continuing obligation extending for a period exceeding that of the Defects Liability Period under the Contract, the Contractor

shall at any time after the expiration of such Period, assign to the Employer, at the Employer's request and cost, the benefit of such obligation for the unexpired duration thereof.

8. DRAWINGS

8.1. Custody of drawings

The drawings shall remain in the sole custody of the Employer but two (2) copies thereof shall be furnished to the Contractor free of cost. The Contractor shall provide and make at his own expense any further copies required by him. At the completion of the Works, the Contractor shall return to the Employer all drawings provided under the Contract.

8.2. One copy of Drawings to be kept on Site

One copy of the Drawings furnished to the Contractor as aforesaid shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer and by any other person authorized in writing by the Engineer.

8.3. Disruption of Progress

The Contractor shall give written notice to the Engineer whenever planning or progress of the Works is likely to be delayed or disrupted unless any further drawing or order, including a direction, instruction or approval, is issued by the Engineer within a reasonable time. The notice shall include details of drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

9. WORK BOOK

The Contractor shall maintain a Work Book at the Site with numbered pages, in one original and two copies. The Engineer shall have full authority to issue new orders, drawings and instructions to the Contractor, from time to time and as required for the correct execution of the Works. The Contractor shall be bound to follow such orders, drawings and instructions.

Every order shall be dated and signed by the Engineer and the Contractor, in order to account for its receipt.

Should the Contractor want to refuse an order in the Work Book, he shall so inform the Employer, through the Engineer, by means of an annotation in the Work Book made within three (3) days from the date of the order that the Contractor intends to refuse. Failure by the Contractor to adhere to this procedure shall result in the order being deemed accepted with no further possibility of refusal.

The original of the Work Book shall be delivered to the Employer at the time of Final Acceptance of the Works. A copy shall be kept by the Engineer and another copy by the Contractor.

10. PERFORMANCE SECURITY

a) As guarantee for his proper and efficient performance of the Contract, the Contractor shall on signature of the Contract furnish the Employer with a Performance Security issued for the benefit of the Employer. The amount and character of such security (bond or guarantee) shall be as indicated in the Contract.

b) The Performance Bond or Bank Guarantee must be issued by an acceptable insurance company or accredited bank, in the format included in Appendix I to these General Conditions, and must be valid up to twenty-eight days after issuance by the Engineer of the Certificate of Final Completion. The Performance Bond or Bank Guarantee shall be returned to the Contractor within twenty-eight days after the issuance by the Engineer of the Certificate of Final Completion, provided that the Contractor shall have paid all money owed to the Employer under the Contract.

c) If the surety of the Performance Bond or Bank Guarantee is declared bankrupt or becomes insolvent or its right to do business in the country of execution of the Works is terminated, the Contractor shall within five (5) days thereafter substitute another bond or guarantee and surety, both of which must be acceptable to the Employer.

11. INSPECTION OF SITE

The Contractor shall be deemed to have inspected and examined the site and its surroundings and to have satisfied himself before submitting his Tender and signing the Contract as to all matters relative to the nature of the land and subsoil, the form and nature of the Site, details and levels of existing pipe lines, conduits, sewers, drains, cables or other existing services, the quantities and nature of the work and materials necessary for the completion of the Works, the means of access to the Site, and the accommodation he may require, and in general to have himself obtained all necessary information as to risk contingencies, climatic, hydrological and natural conditions and other circumstances which may influence or affect his Tender, and no claims will be entertained in this connection against the Employer.

12. SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the construction of the Works and of the rates and prices, which rates and prices shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and completion of the Works.

13. PROGRAMME OF WORK TO BE FURNISHED

Within the time limit specified in the Contract, the Contractor shall submit to the Engineer for his consent a detailed Programme of Work showing the order of procedure and the method in which he proposes to carry out the Works. In preparing his Programme of Work the Contractor shall pay due regard to the priority required by certain works. Should the Engineer, during the progress of work, require further modifications to the Programme of Work, the Contractor shall review the said program. The Contractor shall also whenever required by the Engineer submit particulars in writing of the Contractor's arrangements for carrying out the Works and of the Constructional Plant and Temporary Works which the Contractor intends to supply, use or construct as the case may be. The submission of such program, or any modifications thereto, or the particulars required by the Engineer, shall not relieve the Contractor of any of his duties or obligations under the Contract nor shall the incorporation of any modification to the Programme of Work either at the commencement of the contract or during its course entitle the Contractor to any additional payments in consequence thereof.

14. WEEKLY SITE MEETING

A weekly site meeting shall be held between the UNDP Project Coordinator or engineer, if any, the representative of the Contractor and the Engineer or the Engineer's Representative, in order to verify that the Works are progressing normally and are executed in accordance with the Contract.

15. CHANGE ORDERS

a) The Engineer may instruct the Contractor, with the approval of the Employer and by means of Change Orders, all variations in quantity or quality of the Works, in whole or in part, that are deemed necessary by the Engineer.

b) Processing of change orders shall be governed by clause 48 of these General Conditions.

16. CONTRACTOR'S SUPERINTENDENCE

The Contractor shall provide all necessary superintendence during the execution of the Works and as long thereafter as the Engineer may consider necessary for the proper fulfillment of the Contractor's obligations under the Contract. The Contractor or a competent and authorized agent or representative of the Contractor approved in writing by the Engineer, which approval may at any time be withdrawn, shall be constantly on the site and shall devote his entire time to the superintendence of the Works. Such authorized agent or representative shall receive on behalf of the Contractor directions and instructions from the Engineer. If the approval of such agent or representative shall be withdrawn by the Engineer, as provided in Clause 17(2) hereinafter, or if the removal of such agent or representative shall be requested by the Employer under Clause 17(3) hereinafter, the Contractor shall as soon as it is practicable after receiving notice of such withdrawal remove the agent or representative from the Site, and replace him by another agent or representative approved by the Engineer. Notwithstanding the provision of Clause 17(2) hereinafter, the Contractor shall not thereafter employ, in any capacity whatsoever, a removed agent or representative again on the Site.

17. CONTRACTOR'S EMPLOYEES

a) The Contractor shall provide and employ on the Site in connection with the execution and completion of the Works and the remedying of any defects therein:

i. Only such technical assistants as are skilled and experienced in their respective callings and such sub-agent foremen and leading hands as are competent to give proper supervision to the work they are required to supervise, and

ii. Such skilled, semi-skilled, and unskilled labour as is necessary for the proper and timely execution and completion of the Works.

b) The Engineer shall be at liberty to object to and require the Contractor to remove forthwith from the Works any person employed by the Contractor in or about the execution or completion of the Works, who in the opinion of the Engineer is misconducting himself, or is incompetent or negligent in the proper performance of his duties, or whose employment is otherwise considered reasonably by the Engineer to be undesirable, and such person shall not be again employed on the Site without the written permission of the Engineer. Any person so removed from the Works shall be replaced as soon as reasonably possible by a competent substitute approved by the Engineer.

c) Upon written request by the Employer, the Contractor shall withdraw or replace from the Site any agent, representative or other personnel who does not conform to the standards set forth in paragraph (1) of this Clause. Such request for withdrawal or replacement shall not be considered as

termination in part or in whole of this Contract. All costs and additional expenses resulting from any withdrawal or replacement for whatever reason of any of the Contractor's personnel shall be at the Contractor's expense.

18. SETTING-OUT

The Contractor shall be responsible for the true and proper setting out of the Works in relation to original points, lines and levels of reference given by the Engineer in writing and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labor in connection therewith. If, at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required so to do by the Engineer, shall, at his own cost, rectify such error to the satisfaction of the Engineer.

19. WATCHING AND LIGHTING

The Contractor shall in connection with the Works provide and maintain at his own cost all lights, guards, fencing and watching when and where necessary or required by the Engineer or by any duly constituted authority for the protection of the Works and the materials and equipment utilized therefor or for the safety and convenience of the public or others.

20. CARE OF WORKS

a) From the commencement date of the Works to the date of substantial completion as stated in the Certificate of Substantial Completion, the Contractor shall take full responsibility for the care thereof and of all Temporary Works. In the event that any damage or loss should happen to the Works or to any part thereof or to any Temporary Works from any cause whatsoever (save and except as shall be due to Force Majeure as defined in Clause 66 of these General Conditions), the Contractor shall at his own cost repair and make good the same so that, at completion, the Works shall be in good order and condition and in conformity in every respect with the requirements of the Contract and the Engineer's instructions. The Contractor shall also be liable for any damage to the Works occasioned by him in the course of any operations carried out by him for the purpose of complying with his obligations Clause 47 hereof.

b) The Contractor shall be fully responsible for the review of the Engineering design and details of the Works and shall inform the Employer of any mistakes or incorrectness in such design and details which would affect the Works.

21. INSURANCE OF WORKS, ETC.

Without limiting his obligations and responsibilities under Clause 20 hereof, the Contractor shall insure immediately following signature of this Contract, in the joint names of the Employer and the Contractor (a) for the period stipulated in Clause 20(1) hereof, against all loss or damage from whatever cause arising, other than cause of Force majeure as defined in clause 66 of these General Conditions, and (b) against loss or damage for which the Contractor is responsible, in such manner that the Employer and the Contractor are covered for the period stipulated in Clause 20 (1) hereof and are also covered during the Defects Liability Period for loss or damage arising from a cause

occurring prior to the commencement of the Defects Liability Period and for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 47 hereof:

a) The Works, together with the materials and Plant for incorporation therein, to their full replacement cost, plus an additional sum of ten (10) per cent of such replacement cost, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature;

b) The Contractor's equipment and other things brought on to the Site by the Contractor to the replacement value of such equipment and other things;

c) An insurance to cover the liabilities and warranties of Section 52(4);

Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and the Contractor shall, whenever required, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

22. DAMAGE TO PERSONS AND PROPERTY

The Contractor shall (except if and so far as the Contract provides otherwise) indemnify, hold and save harmless and defend at his own expense the Employer, its officers, agents, employees and servants from and against all suits, claims, demands, proceedings, and liability of any nature or kind, including costs and expenses, for injuries or damages to any person or any property whatsoever which may arise out of or in consequence of acts or omissions of the Contractor or its agents, employees, servants or subcontractors in the execution of the Contract. The provision of this Clause shall extend to suits, claims, demands, proceedings and liability in the nature of workmen's compensation claims and arising out of the use of patented inventions and devices. Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or with respect to:

a) The permanent use or occupation of land by the Works or any part thereof;

b) The right of the Employer to construct the Works or any part thereof on, over, under, or through any land.

c) Interference whether temporary or permanent with any right of light, airway or water or other easement or quasi-easement which is the unavoidable result of the construction of the Works in accordance with the Contract.

d) Death, injuries or damage to persons or property resulting from any act or neglect of the Employer, his agents, servants or other contractors, done or committed during the validity of the Contract.

23. LIABILITY INSURANCE

23.1. Obligation to take out Liability Insurance

Before commencing the execution of the Works, but without limiting his obligations and responsibility under Clause 20 hereof, the Contractor shall insure against his liability for any death, material or physical damage, loss or injury which may occur to any property, including that of the Employer or to any person, including any employee of the Employer by or arising out of the execution of the Works or in the carrying out of the Contract, other than due to the matters referred to in the proviso to Clause 22 hereof.

23.2. Minimum Amount of Liability Insurance

Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and for at least the amount specified in the contract. The Contractor shall, whenever required by the Employer or the Engineer, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

23.3. Provision to Indemnify Employer

The insurance policy shall include a provision whereby, in the event of any claim in respect of which the Contractor would be entitled to receive indemnity under the policy, being brought or made against the Employer, the insurer shall indemnify the Employer against such claims and any costs, charges and expenses in respect thereof.

24. ACCIDENT OR INJURY TO WORKMEN

a) The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or any sub-Contractor, save and except an accident or injury resulting from any act or default of the Employer, his agents or servants. The Contractor shall indemnify, hold and save harmless the Employer against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

b) Insurance Against Accident, etc., to Workmen

The Contractor shall insure against such liability with an insurer approved by the Employer, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him for the Works and shall, when required, produce to the Engineer such policy of insurance and the receipt for payment of the current premium. Provided always that, in respect of any persons employed by any subcontractor, the Contractor's obligation to insure as aforesaid under this sub-clause shall be satisfied if the subcontractor shall have insured against the liability in respect of such persons in such manner that the Employer is indemnified under the policy but the Contractor shall require such subcontractor to produce to the Engineer when required such policy of insurance and the receipt for the current premium, and obtain the insertion of a provision to that effect in its contract with the subcontractor.

25. REMEDY ON CONTRACTOR'S FAILURE TO INSURE

If the Contractor shall fail to effect and keep in force any of the insurances referred to in Clauses 21, 23 and 24 hereof, or any other insurance which he may be required to effect under the terms of the Contract, the Employer may in any such case effect and keep in force any such insurance and pay such premium as may be necessary for that purpose and from time to time deduct the amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor, or recover the same as a debt due from the Contractor.

26. COMPLIANCE WITH STATUTES, REGULATIONS, ETC.

a) The Contractor shall give all notices and pay all fees and charges required to be given or paid by any national or State Statutes, Ordinances, Laws, Regulations or By-laws, or any local or other duly constituted authority in relation to the execution of the Works or of any Temporary Works and by the Rules and Regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works or any Temporary Works.

b) The Contractor shall conform in all respects with any such Statutes, Ordinances, Laws, Regulations, By-laws or requirements of any such local or other authority which may be applicable to the Works and shall keep the Employer indemnified against all penalties and liabilities of every kind for breach of any such Statutes, Ordinances, Laws, Regulations, By-laws or requirements.

27. FOSSILS, ETC.

All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site of the Works shall as between the Employer and the Contractor be deemed to be the absolute property of the Employer and the Contractor shall take reasonable precautions to
prevent his workmen or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Employer of such discovery and carry out at the expense of the Employer the Engineer's orders as to the disposal of the same.

28. COPYRIGHT, PATENT AND OTHER PROPRIETARY RIGHTS, AND ROYALTIES

a) The Contractor shall hold harmless and fully indemnify the Employer from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of any Plant, equipment, machine, work or material used for or in connection with the Works or Temporary Works and from and against all claims, demands proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto, except where such infringement results from compliance with the design or Specification provided by the Engineer.

b) Except where otherwise specified, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for getting stone, sand, gravel, clay or other materials required for the Works or Temporary Works.

29. INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES

All operations necessary for the execution of the Works and for the Construction of any Temporary Works shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the public convenience, or the access to, use and occupation of, public or private roads and footpaths to or of properties whether in the possession of the Employer or of any other person. The Contractor shall hold harmless and indemnify the Employer in respect of all claims, demands, proceedings, damages, costs, charges and expenses whatsoever arising out of or in relation to any such matters in so far as the Contractor is responsible therefor.

30. EXTRAORDINARY TRAFFIC AND SPECIAL LOADS

a) The Contractor shall use every reasonable means to prevent any of the roads or bridges communicating with or on the routes to the Site from being damaged by any traffic of the Contractor or any of his sub-contractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as will inevitably arise from the moving of plant and material from and to the Site shall be limited as far as reasonably possible and so that no unnecessary damage may be occasioned to such roads and bridges.

b) Should it be found necessary for the Contractor to move any load of Constructional Plant, machinery, preconstructed units or parts of units of work, or other thing, over part of a road or bridge, the moving whereof is likely to damage any such road or bridge unless special protection or strengthening is carried out, then the Contractor shall before moving the load on to such road or bridge, save insofar as the Contract otherwise provide, be responsible for and shall pay for the cost of strengthening any such bridge or altering or improving any such road to avoid such damage, and the Contractor shall indemnify and keep the Employer indemnified against all claims for damage to any such road or bridge caused by such movement, including such claim as may be made directly against the Employer, and shall negotiate and pay all claims arising solely out of such damage.

31. OPPORTUNITIES FOR OTHER CONTRACTORS

The Contractor shall in accordance with the requirements of the Engineer afford all reasonable opportunities for carrying out their work to any other contractors employed by the Employer and their workmen and to the workmen of the Employer and of any other duly constituted authorities who may be employed in the execution on or near the Site of any work not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the Works. If work by other contractors of the Employer as above-mentioned involves the Contractor in any direct expenses as a result of using his Site facilities, the Employer shall consider payment to the Contractor of such sum or sums as may be recommended by the Engineer.

32. CONTRACTOR TO KEEP SITE CLEAN

During the progress of the Works, the Contractor shall keep the Site reasonably free from all unnecessary obstruction and shall store or dispose of any Constructional Plant and surplus materials and clear away and remove from the Site any wreckage, rubbish or Temporary Works no longer required.

33. CLEARANCE OF SITE ON SUBSTANTIAL COMPLETION

On the substantial completion of the Works, the Contractor shall clear away and remove from the Site all Constructional Plant surplus materials, rubbish and Temporary Works of every kind and leave the whole of the Site and Works clean and in a workmanlike condition to the satisfaction of the Engineer.

34. LABOUR

34.1 Engagement of Labour

The Contractor shall make his own arrangements for the engagement of all labour local or otherwise.

34.2 Supply of Water

The Contractor shall provide on the Site to the satisfaction of the Engineer an adequate supply of drinking and other water for the use of the Contractor's staff and work people.

34.3 Alcoholic Drinks or Drugs

The Contractor shall comply with Government laws and regulations and orders in force as regards the import, sale, barter or disposal of alcoholic drinks or narcotics and he shall not allow or facilitate such importation, sale, gift, barter or disposal by his sub-contractors, agents or employees.

34.4 Arms and Ammunition

The restrictions specified in clause 34.3 above shall include all kinds of arms and ammunition.

34.5 Holiday and Religious Customs

The Contractor shall in all dealings with labour in his employ have due regard to all holiday, recognized festivals and religious or other customs.

34.6 Epidemics

In the event of any outbreak of illness of an epidemic nature the Contractor shall comply with and carry out such regulations, orders, and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.

34.7 Disorderly Conduct, etc.

The Contractor shall at all times take all reasonable precautions to prevent any unlawful riotous or disorderly conduct by or amongst his employees and for the preservation of peace and the protection of persons and property in the neighborhood of the Works against the same.

34.8 Observance by Sub-Contractors

The Contractor shall be considered responsible for the observance of the above provisions by his Sub-Contractors.

34.9 Legislation applicable to Labour

The Contractor shall abide by all applicable legislation and regulation with regard to labour.

35 RETURNS OF LABOUR, PLANT, ETC.

The Contractor shall, if required by the Engineer, deliver to the Engineer at his office, a return in detail in the form and at such intervals as the Engineer may prescribe showing the supervisory staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such information respecting Constructional plant as the Engineer may require.

36 MATERIALS, WORKMANSHIP AND TESTING

36.1 Materials and Workmanship

a) All materials and workmanship shall be of the respective kinds described in the Contract and in accordance with the Engineer's instructions and shall be subjected from time to time to such tests as the Engineer may direct at the place of manufacture or fabrication, or on the Site or at all or any of such places. The Contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any materials used and shall supply samples of materials before incorporation in the Works for testing as may be selected and required by the Engineer. All testing equipment and instruments provided by the Contractor shall be used only by the Engineer or by the Contractor in accordance with the instructions of the Engineer.

b) No material not conforming with the Specifications in the Contract may be used for the Works without prior written approval of the Employer and instruction of the Engineer, provided always that if the use of such material results or may result in increasing the Contract Price, the procedure in Clause 48 shall apply.

36.2 Cost of Samples

All samples shall be supplied by the Contractor at his own cost unless the supply thereof is clearly intended in the Specifications or Bill of Quantities to be at the cost of the Employer. Payment will not be made for samples which do not comply with the Specifications.

36.3 Cost of Tests

The Contractor shall bear the costs of any of the following tests:

a) Those clearly intended by or provided for in the Contract Documents.

b) Those involving load testing or tests to ensure that the design of the whole of the Works or any part of the Works is appropriate for the purpose which it was intended to fulfill.

37 ACCESS TO SITE

The Employer and the Engineer and any persons authorized by either of them shall, at all times, have access to the Works and to the Site and to all workshops and places where work is being prepared or whence materials, manufactured articles or machinery are being obtained for the Works and the Contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

38 EXAMINATION OF WORK BEFORE COVERING UP

No work shall be covered up or put out of view without the approval of the Engineer and the Contractor shall afford full opportunity for the Engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer whenever any such work or foundations is or are ready or about to be ready for examination and the Engineer shall without unreasonable delay unless he considers it unnecessary and advises the Contractor accordingly attend for the purpose of examining and measuring such work or of examining such foundations.

39 REMOVAL OF IMPROPER WORK AND MATERIALS

39.1 Engineer's power to order removal

The Engineer shall during the progress of the Works have power to order in writing from time to time, and the Contractor shall execute at his cost and expense, the following operations:

a) The removal from the Site within such time or times as may be specified in the order of any materials which in the opinion of the Engineer are not in accordance with the Contract;

b) The substitution of proper and suitable materials; and

c) The removal and proper re-execution (notwithstanding any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not in the opinion of the Engineer in accordance with the Contract.

39.2 Default of Contractor in carrying out Engineer's Instructions

In case of default on the part of the Contractor in carrying out an instruction of the Engineer, the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer and may be deducted by the Employer from any monies due or which may become due to the Contractor.

40 SUSPENSION OF WORK

The Contractor shall on the written order of the Engineer suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall, during such suspension, properly protect and secure the Works so far as it is necessary in the opinion of the Engineer. The Employer should be notified and his written approval should be sought for any suspension of work in excess of three (3) days.

41 POSSESSION OF SITE

41.1 Access to Site

The Employer shall with the Engineer's written order to commence the Works, give to the Contractor possession of so much of the Site as may be required to enable the Contractor to commence and proceed with the construction of the Works in accordance with the Programme referred to in Clause 13 hereof and otherwise in accordance with such reasonable proposals of the Contractor as he shall make to the Engineer by notice in writing, and shall from time to time as the Works proceed give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the construction of the Works with due dispatch in accordance with the said Programme or proposals, as the case may be.

41.2 Wayleaves, etc.

The Contractor shall bear all expenses and charges for special temporary wayleaves required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional accommodation outside the Site required by him for the purpose of the Works.

41.3 Limits of the Site

Except as defined below, the limits of the Site shall be as defined in the Contract. Should the Contractor require land beyond the Site, he shall provide it entirely at his own expense and before taking possession shall supply the Engineer with a copy of the necessary permits. Access to the Site is available where the Site adjoins a public road but it is not provided unless shown on the Drawings. When necessary for the safety and convenience of workmen, public or livestock or for the protection of the Works, the Contractor shall, at his own expense, provide adequate temporary fencing to the whole or part of the Site. The Contractor shall not disturb, damage or pull down any hedge, tree or building within the Site without the written consent of the Engineer.

42 TIME FOR COMPLETION

a) Subject to any requirement in the Contract as to completion of any section of the Works before completion of the whole, the whole of the Works shall be completed, in accordance with the provisions of Clause 46 and 47 hereof, within the time stated in the Contract.

b) The completion time includes weekly rest days, official holidays, and days of inclement weather.

43 EXTENSION OF TIME FOR COMPLETION

If, subject to the provisions of the Contract, the Engineer orders alterations or additions in the Works in accordance with Clause 48 hereof, or if circumstances constituting force majeure as defined in the Contract have occurred, the Contractor shall be entitled to apply for an extension of the time for completion of the Works specified in the Contract. The Employer shall, upon such application, determine the period of any such extension of time; provided that in the case of alterations or additions in the Works, the application for such an extension must be made before the alterations or additions in the Works are undertaken by the Contractor.

44 RATE OF PROGRESS

The whole of the materials, plant and labour to be provided by the Contractor and the mode, manner and speed of execution and completion of the Works are to be of a kind and conducted in a manner to the satisfaction of the Engineer. Should the rate of progress of the Works or any part thereof be at any time in the opinion of the

Engineer too slow to ensure the completion of the Works by the prescribed time or extended time for completion, the Engineer shall so notify the Contractor in writing and the Contractor shall thereupon take such steps as the Contractor may think necessary and the Engineer may approve to expedite progress so as to complete the Works by the prescribed time or extended time for completion. If the work is not being carried on by day and by night and the Contractor shall request permission to work by night as well as by day, then, if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment. All work at night shall be carried out without unreasonable noise and disturbance. The contractor shall indemnify the Employer from and against any claims or liability for damages on account of noise or other disturbance created while or in carrying out the work and from and against all claims, demands, proceedings, costs and expenses whatsoever in regard or in relation to such noise or other disturbance. The Contractor shall submit in triplicate to the Engineer at the end of each month signed copies of explanatory Drawings or any other material showing the progress of the Works.

45 LIQUIDATED DAMAGES FOR DELAY

a) If the Contractor shall fail to complete the Works within the time for completion prescribed in the Contract, or any extended time for completion in accordance with the Contract, then the Contractor shall pay to the Employer the sum specified in the Contract as liquidated damages, for the delay between the time prescribed in the Contract or the extended time for completion, as the case may be, and the date of substantial completion of the Works as stated in the Certificate of Substantial Completion, subject to the applicable limit stated in the Contract. The said sum shall be payable by the sole fact of the delay without the need for any previous notice or any legal proceedings, or proof of damage, which shall in all cases be considered as ascertained. The Employer may, without prejudice to any other method of recovery, deduct the amount of such liquidated damages from any monies in its hands due or which may become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works or from any other of his obligations and liabilities under the Contract.

b) If, before the time for completion of the whole of the Works or of a Section of the Works, a Certificate of Substantial Completion has been issued for any part or Section of the Works, the liquidated damages for delay in completion of the remainder of the Works or of that Section may, for any period of delay after the date stated in such Certificate of Substantial Completion, and in the absence of alternative provisions in the Contract, be reduced in the proportion which the value of the part or Section so certified bears to the total value of the whole of the Works or Section, as applicable. The provisions of this Sub-Clause shall only apply to the rate of liquidated damages and shall not affect the limit thereof.

46 CERTIFICATE OF SUBSTANTIAL COMPLETION

46.1 Substantial Completion of the Works

When the whole of the Works have been substantially completed and have satisfactorily passed any test on completion prescribed by the Contract, the Contractor may give a notice to that effect to the Engineer accompanied by an undertaking to finish any outstanding work during the Defects Liability Period. Such notice and undertaking shall be in writing and shall be deemed to be a request by the Contractor, for the Engineer to issue a Certificate of Substantial Completion in respect of the Works. The Engineer shall, within twenty-one (21) days of the date of delivery of such notice either issue to the Contractor, with a copy to the Employer, a Certificate of Substantial Completion stating the date on which, in his opinion, the Works were substantially completed in accordance with the Contract or give instructions in writing to the Contractor specifying all the work which, in the Engineer's opinion, requires to be done by the Contractor before the issuance of such Certificate. The Engineer shall also notify the Contractor of any defects in the Works affecting substantial completion that may appear after such instructions and before completion of the work specified therein. The Contractor shall be entitled to receive such Certificate of Substantial Completion within twenty-one (21) days of completion, to the satisfaction of the Engineer, of the work so specified and making good any defect so notified. Upon issuance of the Certificate of Substantial Completion of the Works, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work during the Defects Liability Period.

46.2 Substantial Completion of Sections or Parts of the Works

In accordance with the procedure in Sub-Clause (1) of this Clause and on the same conditions as provided therein, the Contractor may request the Engineer to issue, and the Engineer may issue, a Certificate of Substantial Completion in respect of any Section or part of the Works which has been substantially completed and has satisfactorily passed any tests on completion prescribed by the Contract, if:

a) a separate time for completion is provided in the Contract in respect of such Section or part of the Works;

b) such Section or part of the Works has been completed to the satisfaction of the Engineer and is required by the Employer for his occupation or use.

Upon the issuance of such Certificate, the Contractor shall be deemed to have undertaken to complete any outstanding work during the Defects Liability Period.

47 DEFECTS LIABILITY

47.1 Defects Liability Period

The expression "Defects Liability Period" shall mean the period of twelve (12) months, calculated from the date of completion of the Works stated in the Certificate of Substantial Completion issued by the Engineer or, in respect of any Section or part of the Works for which a separate Certificate of Substantial Completion has been issued, from the date of completion of that Section or part as stated in the relevant Certificate. The expression "the Works" shall, in respect of the Defects Liability Period, be construed accordingly.

47.2 Completion of Outstanding Work and Remedying of Defects

During the Defects Liability Period, the Contractor shall finish the work, if any, outstanding at the date of the Certificate of Substantial Completion, and shall execute all such work of repair, amendment, reconstruction, rectification and making good defects, imperfections, shrinkages or other faults as may be required of the Contractor in writing by the Engineer during the Defects Liability Period and within fourteen (14) days after its expiration, as a result of an inspection made by or on behalf of the Engineer prior to expiration of the Defects Liability Period.

47.3 Cost of Execution of Work of Repair, etc.

All such outstanding work shall be carried out by the Contractor at his own expense if the necessity thereof shall, in the opinion of the Engineer, be due to the use of material or workmanship not in accordance with the Contract, or to neglect or failure on the part of the Contractor to comply with any obligation expressed or implied, on the Contractor's part under the Contract.

47.4 Remedy on Contractor's Failure to Carry Out Work Required

If the Contractor shall fail to do any such work outstanding on the Works, the Employer shall be entitled to employ and pay other persons to carry out the same, and all expenses consequent thereon or incidental thereto shall be recoverable from the Contractor by the Employer, and may be deducted by the Employer from any monies due or which may become due to the Contractor.

47.5 Certificate of Final Completion

Upon satisfactory completion of the work outstanding on the Works, the Engineer shall within twenty eight (28) days of the expiration of the Defects Liability period issue a Certificate of Final Completion to the Contractor. The Contract shall be deemed to be completed upon issuance of such Certificate, provided that the provisions of the Contract which remain unperformed and the Settlement of Disputes provision in the Contract shall remain in force for as long as is necessary to dispose of any outstanding matters or issues between the Parties.

48 ALTERATIONS, ADDITIONS AND OMISSIONS

1 Variations

The Engineer may within his powers introduce any variations to the form, type or quality of the Works or any part thereof which he considers necessary and for that purpose or if for any other reasons it shall, in his opinion be desirable, he shall have power to order the Contractor to do and the Contractor shall do any of the following:

(a) increase or decrease the quantity of any work under the Contract;

(b) omit any such work;

(c) change the character or quality or kind of any such work;

(d) change the levels, lines, positions and dimensions of any part of the Works;

(e) execute additional work of any kind necessary for the completion of the Works, and no such variation shall in any way vitiate or invalidate the Contract.

2 Variations Increasing Cost of Contract or altering the Works.

The Engineer shall, however, obtain the written approval of the Employer before giving any order for any variations which may result in an increase of the Contract Price or in an essential alteration of the quantity, quality or character of the Works.

3 Orders for Variations to be in Writing

No variations shall be made by the Contractor without an order in writing from the Engineer. Variations requiring the written approval of the Employer under paragraph (2) of this Clause shall be made by the Contractor only upon written order from the Engineer accompanied by a copy of the Employer's approval. Provided that, subject to the provisions of the Contract, no order in writing shall be required for any increase or decrease in the quantity of any work where such increase or decrease is not the result of an order given under this Clause but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.

4 Valuation of Variations

The Engineer shall estimate to the Employer the amount to be added or deducted from the Contract Price in respect of any variation, addition or omission. In the case of any variation, addition or omission which may result in an increase of the Contract Price, the Engineer shall communicate such estimate to the Employer together with his request for the Employer's written approval of such variation, addition or omission. The value of any variation, addition or omission shall be calculated on the basis of the unit prices contained in the Bill of Quantities.

49 PLANT, TEMPORARY WORKS AND MATERIALS

1 Plant, etc., Exclusive Use for the Works

All Constructional Plant, Temporary Works and Materials provided by the Contractor shall, when brought on the Site, be deemed to be exclusively intended for the construction and completion of the Works and the Contractor shall not remove the same or any part thereof (save for the purpose of moving it from one part of the Site to another) without the consent in writing of the Engineer which shall not be unreasonably withheld.

2 Removal of Plant, etc.

Upon completion of the Works the Contractor shall remove from the Site all the said Constructional Plant and Temporary Works remaining thereon and any unused materials provided by the Contractor.

3 Employer not liable for Damage to Plant

The Employer shall not be at any time liable for the loss of any of the said Constructional plant, Temporary Works or Materials save if such loss results from the act or neglect of the Employer, its employees or agents.

4 Ownership of paid material and work

All material and work covered by payments made by the Employer to the Contractor shall thereupon become the sole property of the Employer, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work or as waiving the right of the Employer to require the fulfillment of all of the terms of the Contract.

5 Equipment and supplies furnished by Employer

Title to any equipment and supplies which may be furnished by the Employer shall rest with the Employer and any such equipment and supplies shall be returned to the Employer at the conclusion of the Contract or when no longer needed by the Contractor. Such equipment when returned to the Employer, shall be in the same condition as when delivered to the Contractor, subject to normal wear and tear.

50 APPROVAL OF MATERIALS ETC., NOT IMPLIED

The operation of Clause 49 hereof shall not be deemed to imply any approval by the Engineer of the materials or other matters referred to therein nor shall it prevent the rejection of any such materials at any time by the Engineer.

51 MEASUREMENT OF WORKS

The Engineer shall, when he requires any part or parts of the Works to be measured, give notice to the Contractor or the Contractor's authorized agent or representative who shall forthwith attend or send a qualified agent to assist the Engineer in making such measurement and shall furnish all particulars required by either of them. Should the Contractor not attend or neglect or omit to send such agent, then the measurement made by the Engineer or approved by him shall be taken to be the correct measurement of the work. The purpose of measuring is to ascertain the volume of work executed by the Contractor and therefore determine the amount of the monthly payments.

52 LIABILITY OF THE PARTIES

1 The Works shall not be considered as completed until a Certificate of Final Completion shall have been signed by the Engineer and delivered to the Employer stating that the Works have been completed and that the Contractor has fulfilled all his obligations under Clause 47 to his satisfaction.

2 The Employer shall not be liable to the Contractor for any matter arising out of or in connection with the Contract or the execution of the Works unless the Contractor shall have made a claim in writing in respect thereof before the giving of the Certificate of Final Completion and in accordance with the Contract.

3 Unfulfilled Obligations

Notwithstanding the issue of the Certificate of Final Completion, the Contractor shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issuance of the Certificate of Final Completion and which remains unperformed at the time such Certificate is issued. For the purpose of determining the nature and extent of any such obligation the Contract shall be deemed to remain in force between the parties hereto.

4 Contractor Responsible

Notwithstanding any other provisions in the Contract documents, the Contractor shall be totally responsible for and shall bear any and all risks of loss or damage to or failure of the Works or any part thereof for a period of ten years after issuance of the Certificate of Final Completion, provided always that such risks, damage or failure result from acts, defaults and negligence of the Contractor, his agents, employees or workmen and such contractors.

53 AUTHORITIES

1 The Employer shall have the right to enter upon the Site and expel the Contractor therefrom without thereby voiding the Contract or releasing the Contractor from any of his obligations or liabilities under the Contract or affecting the rights and powers conferred on the Employer and the Engineer by the Contract in any of the following cases:

(a) If the Contractor is declared bankrupt or claims bankruptcy or court protection against his creditors or if the Contractor is a company or member of a company which was dissolved by legal action;

(b) If the Contractor makes arrangements with his creditors or agrees to carry out the Contract under an inspection committee of his creditors;

(c) If the Contractor withdraws from the Works or assigns the Contract to others in whole or in part without the Employer's prior written approval;

(d) If the Contractor fails to commence the Works or shows insufficient progress to the extent which in the opinion of the Engineer will not enable him to meet the target completion date of the Works;

(e) If the Contractor suspends the progress of the Works without due cause for fifteen (15) days after receiving from the Engineer written notice to proceed;

(f) If the Contractor fails to comply with any of the Contract conditions or fails to fulfill his obligations and does not remedy the cause of his failure within fifteen (15) days after being notified to do so in writing;

(g) If the Contractor is not executing the work in accordance with standards of workmanship specified in the Contract;

(h) If the Contractor gives or promises to give a present or loan or reward to any employee of the Employer or of the Engineer.

Then the Employer may himself complete the Works or may employ any other contractor to complete the Works and the Employer or such other contractor may use for such completion so much of Constructional Plant, Temporary Works and Materials, which have been deemed to be reserved exclusively for the construction and completion of the Works under the provision of the Contract as he or they may think proper and the Employer may at any time sell any of the said Constructional Plant, Temporary Works and unused materials and apply the proceeds of sale in or towards the satisfaction of any sums due or which may become due to him from the Contractor under the Contract.

2 Evaluation after Re-entry

The Engineer shall as soon as may be practicable after any such entry and expulsion by the Employer notify the Contractor to attend the necessary evaluation of the Works. In the event that for any reason the Contractor does not attend such evaluation the Engineer shall undertake the said evaluation in the absence of the Contractor and shall issue a certificate stating the sum, if any, due to the Contractor for work done in accordance with the Contract up to the time of entry and expulsion by the Employer which has been reasonably accumulated to the Contractor in respect of the Works he has executed in such case in accordance with the Contract. The Engineer shall indicate the value of the materials whether unused or partially used and the value of construction equipment and any part of the Temporary Works.

3 Payment After Re-entry

If the Employer shall enter and expel the Contractor under this Clause he shall not be liable to pay the

Contractor any money on account of the Contract until the expiration of the Defects Liability Period, and thereafter until the costs of completion and making good any defects of the Works, damages for delay in completion (if any), and all other expenses incurred by the Employer have been ascertained and their amount certified by the Engineer. The Contractor shall then be entitled to receive only such sum or sums (if any) as the Engineer may certify would have been due to him upon due completion by him after deducting the said amount. But if such amount shall exceed the sum which would have been payable to the Contractor on due completion by him, then the Contractor shall upon demand pay to the Employer the amount of such excess. The Employer in such case may recover this amount from any money due to the Contractor from the Employer without the need to resort to legal procedures.

54 URGENT REPAIRS

If by reason of any accident or failure or other event occurring to, in or in connection with the Works or any part thereof either during the execution of the Works or during the Defects Liability Period any remedial or other work or repair shall in the opinion of the Engineer be urgently necessary for security and the Contractor is unable or unwilling at once to do such work or repair, the Employer may by his own or other workmen do such work or repair as the Engineer may consider necessary. If the work or repair so done by the Employer is work which in the opinion of the Engineer the Contractor was liable to do at his own expense under the Contract, all costs and charges properly incurred by the Employer in so doing shall on demand be paid by the Contractor to the Employer or may be deducted by the Employer from any monies due or which may become due to the Contractor provided always that the Engineer shall as soon after the occurrence of any such emergency as may be reasonably practicable notify the Contractor thereof in writing.

55 INCREASE AND DECREASE OF COSTS

Except if otherwise provided by the Contract, no adjustment of the Contract Price shall be made in respect of fluctuations of market, prices of labour, materials, plant or equipment, neither due to fluctuation in interest rates nor devaluation or any other matters affecting the Works.

56 TAXATION

The Contractor shall be responsible for the payment of all charges and taxes in respect of income including value added tax, all in accordance with and subject to the provisions of the income tax laws and regulations in force and all amendments thereto. It is the Contractor's responsibility to make all the necessary inquiries in this respect and he shall be deemed to have satisfied himself regarding the application of all relevant tax laws.

57 BLASTING

The Contractor shall not use any explosives without the written permission of the Engineer who shall require that the Contractor has complied in full with the regulations in force regarding the use of explosives. However, the Contractor, before applying to obtain these explosives, has to provide well arranged storage facilities. The Engineer's approval or refusal to permit the use of explosives shall not constitute ground for claims by the Contractor.

58 MACHINERY

The Contractor shall be responsible for coordinating the manufacture, delivery, erection and commissioning of plant machinery and equipment which are to form a part of the Works. He shall place all necessary orders as soon as possible after the signing of the Contract. These orders and their acceptance shall be produced to the Engineer on request. The Contractor shall also be responsible for ensuring that all sub-contractors adhere to such programs as are agreed and are needed to ensure completion of the Works within the period for completion. Should any sub-contracted works be delayed, the Contractor shall initiate the necessary action to speed up such completion. This shall not prejudice the Employer's right to exercise his remedies for delay in accordance with the Contract.

59 TEMPORARY WORKS AND REINSTATEMENT

The Contractor shall provide and maintain all temporary roads and tracks necessary for movement of plant and materials and clear same away at completion and make good all works damaged or disturbed. The Contractor shall submit drawings and full particulars of all Temporary Works to the Engineer before commencing same. The Engineer may require modifications to be made if he considers them to be insufficient and the Contractor shall give effect to such modifications but shall not be relieved of his responsibilities. The Contractor shall provide and maintain weather-proof sheds for storage of material pertinent to the Works both for his own use and for the use of the Employer and clear same away at the completion of the Works. The Contractor shall divert as required, at his own cost and subject to the approval of the Engineer, all public utilities encountered during the progress of the Works, except those specially indicated on the drawings as being included in the Contract. Where diversions of services are not required in connection with the Works, the Contractor shall uphold, maintain and keep the same in working order in existing locations. The Contractor shall make good, at his own expense, all damage to telephone, telegraph and electric cable or wires, sewers, water or other pipes and other services, except where the Public Authority or Private Party owning or responsible for the same elects to make good the damage. The costs incurred in so doing shall be paid by the Contractor to the Public Authority or Private Party on demand.

60 PHOTOGRAPHS AND ADVERTISING

The Contractor shall not publish any photographs of the Works or allow the Works to be used in any form of advertising whatsoever without the prior approval in writing from the Employer.

61 PREVENTION OF CORRUPTION

The Employer shall be entitled to cancel the Contract and to recover from the Contractor the amount of any loss resulting from such cancellation, if the Contractor has offered or given any person any gift or consideration of any kind as an inducement or reward for doing or intending to do any action in relation to the obtaining or the execution of the Contract or any other contract with the Employer or for showing or intending to show favour or disfavour to any person in relation to the Contract or any other contract with the Employer, if the like acts shall have been done by any persons employed by him or acting on his behalf whether with or without the knowledge of the Contractor in relation to this or any other Contract with the Employer.

62 DATE FALLING ON HOLIDAY

Where under the terms of the Contract any act is to be done or any period is to expire upon a certain day and that day or that period fall on a day of rest or recognized holiday, the Contract shall have effect as if the act were to be done or the period to expire upon the working day following such day.

63 NOTICES

1 Unless otherwise expressly specified, any notice, consent, approval, certificate or determination by any person for which provision is made in the Contract Documents shall be in writing. Any such notice, consent, approval, certificate or determination to be given or made by the Employer, the Contractor or the Engineer shall not be

2 unreasonably withheld or delayed.

3 Any notice, certificate or instruction to be given to the Contractor by the Engineer or the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Contractor's principal place of business specified in the Contract or such other address as the Contractor shall nominate in writing for that purpose, or by

4 delivering the same at the said address against an authorized signature certifying the receipt.

5 Any notice to be given to the Employer under the terms of the Contract shall be sent by post, cable, telex or facsimile at the Employer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.

6 Any notice to be given to the Engineer under the terms of this Contract shall be sent by post, cable, telex or facsimile at the Engineer's address specified in the Contract, or by delivering the same at the said address against an authorized signature certifying the receipt.

64 LANGUAGE, WEIGHTS AND MEASURES

Except as may be otherwise specified in the Contract, English shall be used by the Contractor in all written communications to the Employer or the Engineer with respect to the services to be rendered and with respect to all documents procured or prepared by the Contractor pertaining to the Works. The metric system of weights and measures shall be used in all instances.

65 RECORDS, ACCOUNTS, INFORMATION AND AUDIT

The Contractor shall maintain accurate and systematic records and accounts in respect of the work performed under this Contract.

The Contractor shall furnish, compile or make available at all times to the UNDP any records or information, oral or written, which the UNDP may reasonably request in respect of the Works or the Contractor's performance thereof.

The Contractor shall allow the UNDP or its authorized agents to inspect and audit such records or information upon reasonable notice.

66 FORCE MAJEURE

Force majeure as used herein means Acts of God, war (whether declared or not), invasion, revolution, insurrection or other acts or events of a similar nature or force.

In the event of and as soon as possible after the occurrence of any cause constituting force majeure, the Contractor shall give notice and full particulars in writing to the UNDP and to the Engineer of such force majeure if the Contractor is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under this Contract. Subject to acceptance by the UNDP of the existence of such force majeure, which acceptance shall not be unreasonably withheld, the following provisions shall apply:

(a) The obligations and responsibilities of the Contractor under this Contract shall be suspended to the extent of his inability to perform them and for as long as such inability continues. During such suspension and in respect of work suspended, the Contractor shall be reimbursed by the UNDP substantiated costs of maintenance of the Contractor's equipment and of per diem of the Contractor's permanent personnel rendered idle by such suspension;

(b) The Contractor shall within fifteen (15) days of the notice to the UNDP of the occurrence of the force majeure submit a statement to the UNDP of estimated costs referred to in sub-paragraph (a) above during the period of suspension followed by a complete statement of actual expenditures within thirty (30) days after the end of the

(c) suspension;

(d) The term of this Contract shall be extended for a period equal to the period of suspension taking however into account any special condition which may cause the additional time for completion of the Works to be different from the period of suspension;

(e) If the Contractor is rendered permanently unable, wholly or in part, by reason of force majeure, to perform his obligations and meet his responsibilities under the Contract, the UNDP shall have the right to terminate the Contract on the same terms and conditions as provided for in Clause 68 of these General Conditions, except that the period of notice shall be seven (7) days instead of fourteen (14) days, and

(f) For the purpose of the preceding sub-paragraph, the UNDP may consider the Contractor permanently unable to perform in case of any suspension period of more than ninety (90) days.

67 SUSPENSION BY THE UNDP

The UNDP may by written notice to the Contractor suspend for a specified period, in whole or in part, payments to the Contractor and/or the Contractor's obligation to continue to perform the Works under this Contract, if in the UNDP' sole discretion:

(a) any conditions arise which interfere, or threaten to interfere with the successful execution of the Works or the accomplishment of the purpose thereof, or

(b) the Contractor shall have failed, in whole or in part, to perform any of the terms and conditions of this Contract.

After suspension under sub-paragraph (a) above, the Contractor shall be entitled to reimbursement by the UNDP of such costs as shall have been duly incurred in accordance with this Contract prior to the commencement of the period of such suspension.

The term of this Contract may be extended by the UNDP for a period equal to any period of suspension, taking into account any special conditions which may cause the additional time for completion of the Works to be different from the period of suspension.

68 TERMINATION BY THE UNDP

The UNDP may, notwithstanding any suspension under Clause 67 above, terminate this Contract for cause or convenience in the interest of the UNDP upon not less than fourteen (14) days written notice to the Contractor.

Upon termination of this Contract:

(a) The Contractor shall take immediate steps to terminate his performance of the Contract in a prompt and orderly manner and to reduce losses and to keep further expenditures to a minimum, and

(b) The Contractor shall be entitled (unless such termination has been occasioned by the Contractor's breach of this Contract), to be paid for the part of the Works satisfactorily completed and for the materials and equipment properly delivered to the Site as of the date of termination for incorporation to the Works, plus substantiated costs resulting from commitments entered into prior to the date of termination as well as any reasonable substantiated direct costs incurred by the Contractor as a result of the termination, but shall not be entitled to receive any other or further payment or damages.

69 TERMINATION BY THE CONTRACTOR

In the case of any alleged breach by the UNDP of the Contract or in any other situation which the Contractor reasonably considers to entitle him to terminate his performance of the Contract, the Contractor shall promptly give written notice to the UNDP detailing the nature and the circumstances of the breach or other situation. Upon acknowledgement in writing by the UNDP of the existence of such breach and the UNDP' inability to remedy it, or upon failure of the UNDP to respond to such notice within twenty (20) days of receipt thereof, the Contractor shall be entitled to terminate this Contract by giving 30 days written notice thereof. In the event of disagreement between the Parties as to the existence of such breach or other situation referred to above, the matter shall be resolved in accordance with Clause 71 of these General Conditions.

Upon termination of this Contract under this Clause the provisions of sub-paragraph (b) of Clause 68 hereof shall apply.

70 RIGHTS AND REMEDIES OF THE UNDP

Nothing in or relating to this Contract shall be deemed to prejudice or constitute a waiver of any other rights or remedies of the UNDP.

The UNDP shall not be liable for any consequences of, or claim based upon, any act or omission on the part of the Government.

71 SETTLEMENT OF DISPUTES

In the case of any claim, controversy or dispute arising out of, or in connection with this Contract or any breach thereof, the following procedure for resolution of such claim, controversy or dispute shall apply.

1 Notification

The aggrieved party shall immediately notify the other party in writing of the nature of the alleged claim, controversy or dispute, not later than seven (7) days from awareness of the existence thereof.

2 Consultation

On receipt of the notification provided above, the representatives of the Parties shall start consultations with a view to reaching an amicable resolution of the claim, controversy or dispute without causing interruption of the Works.

3 Conciliation

Where the representatives of the Parties are unable to reach such an amicable settlement, either party may request the submission of the matter to conciliation in accordance with the UNCITRAL Rules of Conciliation then obtaining.

4 Arbitration

Any claim, controversy or dispute which is not settled as provided under clauses 71.1 through 3 above shall be referred to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining. The Parties shall be bound by the arbitration award rendered in accordance with such arbitration as the final adjudication of any such controversy or claim.

72 PRIVILEGES AND IMMUNITIES

Nothing in or relating to this Contract shall be deemed a waiver of any of the privileges and immunities of the United Nations of which the UNDP is an integral part.

73 SECURITY

The Contractor shall:

(a) 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;

(b) assume all risks and liabilities related to the Contractor's security, and the full implementation of the security plan.

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 4.1 above.

74 AUDIT AND INVESTIGATIONS

Each invoice paid by UNDP shall be subject to a post-payment audit by auditors, whether internal or external, of UNDP or the authorized agents of the 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. The UNDP shall be entitled to a refund from the Contractor for any amounts shown by such audits to have been paid by the UNDP other than in accordance with the terms and conditions of the Contract. Should the audit determine that any funds paid by UNDP have not been used as per contract clauses, the company shall reimburse such funds forthwith. Where the company fails to reimburse such funds, UNDP reserves the right to seek recovery and/or to take any other action as it deems necessary.

The Contractor acknowledges and agrees that, at anytime, UNDP may conduct investigations relating to any aspect of the Contract, the obligations performed under the Contract, and the operations of the Contractor generally. The right of UNDP to conduct an investigation and the Contractor's obligation to comply with such an investigation shall not lapse upon expiration or prior termination of the Contract. 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 documentation for such purposes and to grant to UNDP access to the Contractor's premises. 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.

75 ANTI-TERRORISM

The Contractor agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received under this Contract are used to provide support to individuals or entities associated with terrorism and that the 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 http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Contract.