BANGLADESH POWER DEVELOPMENT BOARD

TENDER DOCUMENT

FOR

RE-TENDER FOR DESIGN, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF MUNICIPAL SOLID WASTE TO 1 ± 10% MW ENERGY CONVERSION PILOT PROJECT AT KERANIGANJ ON TURNKEY BASIS.

(Single Stage Two Envelope)


DIRECTORATE OF PURCHASE
BANGLADESH POWER DEVELOPMENT BOARD
WAPDA BUILDING (9TH FLOOR), MOTIJHEEL, C/A.
DHAKA, BANGLADESH

JULY 2017
This Page will be replaced by Tender notice
Table of Contents

Section 1. Instructions to Tenderers .................................................................

A. General ....................................................................................................... 1
   1. Scope of Tender
   2. Interpretation
   3. Source of Funds
   4. Corrupt, Fraudulent, Collusive or Coercive Practices
   5. Eligible Tenderers
   6. Eligible Materials, Equipment and Associated Services
   7. Site Visit

B. Tender Document ...................................................................................... 5
   8. Tender Document: General
   9. Clarification of Tender Document
  10. Pre-Tender Meeting
  11. Addendum to Tender Document

C. Qualification Criteria .................................................................................. 7
   12. General Criteria
   13. Litigation History
   14. Experience Criteria
   15. Financial Criteria
   16. Personnel Capacity
   17. Equipment Capacity
   18. Joint Venture, Consortium or Association (JVCA)
   19. Subcontractor(s)

D. Tender Preparation .................................................................................... 9
   20. Only one Tender
   21. Cost of Tendering
   22. Issuance and Sale of Tender Document
   23. Language of Tender
   24. Contents of Tender
   25. Tender Submission Letter and Bill of Quantities
   26. Alternatives
   27. Tender Prices, Discounts and Price Adjustment
   28. Tender Currency
   29. Documents Establishing Eligibility of the Tenderer
   30. Documents Establishing the Eligibility and Conformity of Materials, Equipment and Services
   31. Documents Establishing Technical Proposal
   32. Documents Establishing the Tenderer’s Qualification
   33. Validity Period of Tender
   34. Extension of Tender Validity and Tender Security
   35. Tender Security
   36. Form of Tender Security
   37. Authenticity of Tender Security
   38. Return of Tender Security
   39. Forfeiture of Tender Security
   40. Format and Signing of Tender

E. Tender Submission ...................................................................................... 16
   41. Sealing, Marking and Submission of Tender
   42. Deadline for Submission of Tender
   43. Late Tender
   44. Notice for Modification, Substitution or Withdrawal of Tender
   45. Tender Modification
   46. Tender Substitution
   47. Tender Withdrawal

F. Tender Opening and Evaluation .................................................................. 17
   48. Tender Opening
   49. Evaluation of Tenders
   50. Evaluation Process
   51. Preliminary Examination
52. Technical Responsiveness and Technical Evaluation .................................................................
53. Clarification on Tender
54. Restrictions on Disclosure of Information
55. Correction of Arithmetical Errors
56. Financial Evaluation
57. Price Comparison
58. Negotiations
59. Post-qualification
60. Procuring Entity’s Right to Accept any or to Reject Any or All Tenders
61. Informing Reasons for Rejection

G. Contract Award .......................................................................................................................... 23
62. Award Criteria
63. Notification of Award
64. Performance Security
65. Form and Time Limit for Furnishing of Performance Security
66. Validity of Performance Security
67. Authenticity of Performance Security
68. Adjudicator
69. Contract Signing
70. Publication of Notification of Award of Contract
71. Debriefing of Tenderers
72. Right to Complain

Section 2. Tender Data Sheet ........................................................................................................ 26
A. General......................................................................................................................................
B. Tender Document.................................................................
C. Qualification Criteria..........................................................
D. Tender Preparation.............................................................
E. Tender Submission..............................................................
F. Tender Opening and Evaluation...........................................
G. Contract Award...........................................................................

Section 3. General Conditions of Contract .................................................................................. 34
A. General......................................................................................................................................
   1. Definitions
   2. Interpretation
   3. Communications and Notices
   4. Governing Law
   5. Governing Language
   6. Documents Forming the Contract and Priority of Documents
   7. Scope of Works
   8. Assignment
   9. Eligibility
   10. Gratuities / Agency fees
   11. Confidential Details
   12. JVCA
   13. Possession of the Site
   14. Access to the Site
   15. Procuring Entity’s Responsibilities
   16. Approval of the Contractor’s Temporary Works
   17. Contractor’s Responsibilities
   18. Taxes and Duties
   19. Contractor’s Personne
   20. Subcontracting
   21. Nominated Subcontractor
   22. Other Contractors
   23. Project Manager’s Decisions
   24. Delegation
   25. Instructions
   26. Queries about the Contract conditions
   27. Safety, Security and Protection of the Environment
   28. Working Hours
29. Welfare of Labourers
30. Child Labour
31. Discoveries
32. Procuring Entity’s and Contractor’s Risks
33. Procuring Entity’s Risks
34. Contractor’s Risks
35. Copyright
36. Limitation of Liability
37. Insurance
38. Management and Progress Meetings
39. Corrupt, Fraudulent, Collusive or Coercive Practices

B. Time Control ..................................................................................................... 48
40. Commencement of Works
41. Completion of Works
42. Programme of Works
43. Pro Rata Progress
44. Early Warning
45. Extension of Intended Completion Date
46. Delays Caused by Authorities
47. Acceleration
48. Delays Ordered by the Project Manager
49. Suspension of Work
50. Consequences of Suspension

C. Quality Control .................................................................................................. 51
51. Execution of Works
52. Examination of Works before covering up
53. Identifying Defects
54. Testing
55. Rejection of Works
56. Remedial Work
57. Correction of Defects
58. Uncorrected Defects

D. Cost Control ...................................................................................................... 52
59. Contract Price
60. Bill of Quantities
61. Changes in the Quantities and Unit Rate or Price
62. Variations
63. Costing of Variations or Extra Orders
64. Cash Flow Forecasts
65. Payment Certificates
66. Payments to the Contractor
67. Delayed Payment
68. Payments to Nominated Subcontractor(s)
69. Compensation Events
70. Adjustments for Changes in Legislation
71. Price Adjustment
72. Retention Money
73. Liquidated Damages
74. Bonus
75. Advance Payment
76. Performance Security
77. Provisional Sums
78. Dayworks
79. Cost of Repairs to Loss or Damages
80. Completion
81. Taking Over
82. Amendment to Contract
83. Final Account
84. As-built Drawings and Manuals
85. Force Majeure
86. Notice of Force Majeure
87. Consequences of Force Majeure
88. Release from Performance
89. Termination
90. Payment upon Termination
91. Property
92. Frustration
93. Contractor’s Claims
94. Settlement of Disputes

E. Completion of the Contract.................................................................59
F. Termination and Settlement of Disputes...............................................62
G. Claims, Disputes and Arbitration......................................................65

Section 4. Particular Conditions of Contract.........................................67

Section 5. Tender and Contract Forms ..................................................85
  Tender Submission Letter (Form PW3-1)
  Tenderer Information (Form PW3-2)
  JVCA Partner Information (Form PW3-3)
  Subcontractor Information (Form PW3-4)
  Personnel Information (Form PW3-5)
  Bank Guarantee for Tender Security (Form PW3-6)
  Notification of Award (Form PW3-7)
  Contract Agreement (Form PW3-8)
  Bank Guarantee for Performance Security (Form PW3-9)
  Bank Guarantee for Advance Payment (Form PW3-10)
  Bank Guarantee for Retention Money Security (Form PW3-11)
  Manufacturer’s Authorisation Letter (Form PW3-12)

Section 6. Bill of Quantities and Price Schedule......................................108

Section 7. General Specifications..........................................................117

Section 8. Particular Specifications.......................................................160

Section 9. Drawings.............................................................................161
Section 1. Instructions to Tenderers

A. General

1. Scope of Tender
   1.1 The Procuring Entity, as indicated in the Tender Data Sheet (TDS) issues this Tender Document for the procurement of Works and associated Services incidental thereto as specified in the TDS and as detailed in Section 6: Bill of Quantities and Price schedule. The name of the Tender and the number and identification of its constituent lot(s) are stated in the TDS.

   1.2 The successful Tenderer shall be required to execute the works and physical services as specified in the General Conditions of Contract.

2. Interpretation
   2.1 Throughout this Tender Document:
      (a) the term “in writing” means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail;
      (b) if the context so requires, singular means plural and vice versa;
      (c) “day” means calendar days unless otherwise specified as working days;
      (d) “Person” means and includes an individual, body of individuals, sole proprietorship, partnership, company, association or cooperative society that wishes to participate in Procurement proceedings;
      (e) “Tenderer” means a Person who submits a Tender;
      (f) “Tender Document” means the Document provided by a Procuring Entity to a Tenderer as a basis for preparation of the Tender; and
      (g) “Tender” depending on the context, means a Tender submitted by a Tenderer for execution of Works and Physical Services to a Procuring Entity in response to an Invitation for Tender.

3. Source of Funds
   3.1 The Procuring Entity has been allocated public funds as indicated in the TDS and intends to apply a portion of the funds to eligible payments under the Contract for which this Tender Document is issued.

   3.2 For the purpose of this provision, “public funds” means any monetary resources appropriated to Procuring Entities under Government budget, or loan, grants and credits placed at the disposal of Procuring Entities through the Government by the development partners or foreign states or organisations.

   3.3 Payments by the development partner, if so indicated in the TDS, will be made only at the request of the Government and upon approval by the development partner or foreign state or Organisation in accordance with the applicable Loan / Credit / Grant Agreement, and will be subject in all respects to the terms and conditions of that Agreement.
4. Corrupt, Fraudulent, Collusive or Coercive Practices

4.1 The Government requires that Procuring Entities, as well as Tenderers and Contractors shall observe the highest standard of ethics during implementation of procurement proceedings and the execution of Contracts under public funds.

4.2 For the purposes of ITT Sub Clause 4.3, the terms set forth below as follows:

(a) “corrupt practice” means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of a Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by a Procuring Entity in connection with a Procurement proceeding or Contract execution;

(b) “fraudulent practice” means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution;

(c) “collusive practice” means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying a Procuring Entity the benefits of competitive price arising from genuine and open competition; or

(d) “coercive practice” means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of a Contract, and this will include creating obstructions in the normal submission process used for Tenders.

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

4.3 Should any corrupt, fraudulent, collusive, coercive or obstructive practice of any kind come to the knowledge of the Procuring Entity, it will, in the first place, allow the Tenderer to provide an explanation and shall, take actions only when a satisfactory explanation is not received. Such exclusion and the reasons thereof, shall be recorded in the record of the procurement proceedings and promptly communicated to the Tenderer concerned. Any communications between the Tenderer and the Procuring Entity related to matters of alleged corrupt, fraudulent, collusive, coercive, or obstructive practices shall be in writing.
4.4 If corrupt, fraudulent, collusive, coercive or obstructive practices of any kind is determined by the Procuring Entity against any Tenderer or Contractor in competing for, or in executing, a contract under public fund, the Procuring Entity shall:
(a) exclude the concerned Tenderer from further participation in the concerned procurement proceedings;
(b) reject any recommendation for award that had been proposed for that concerned Tenderer; and
(c) declare, at its discretion, the concerned Tenderer to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time.

4.5 The Tenderer shall be aware of the provisions on corruption, fraudulence, collusion, coercion and obstruction as stated in GCC Clause 39 and 89.1(b)(vii).

5. Eligible Tenderers

5.1 This Invitation for Tenders is open to all potential Tenderers from all countries, except for any specified in the TDS.

5.2 A Tenderer may be a physical or juridical individual or body of individuals, or company, association or any combination of them in the form of a Joint Venture, Consortium or Association (JVCA) invited to take part in public procurement or seeking to be so invited or submitting a Tender in response to an Invitation for Tenders.

5.3 A Government-owned enterprise in Bangladesh may also participate in the Tender if it is legally and financially autonomous, it operates under commercial law, and it is not a dependent agency of the Procuring Entity.

5.4 The Tenderer shall have the legal capacity to enter into the Contract.

5.5 Tenderers should not be associated, or have been associated in the past, directly or indirectly, with a consultant or any of its affiliates which have been engaged by the Procuring Entity to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the works to be performed under this Invitation for Tenders.

5.6 The Tenderer in its own name or its other names or also in the case of its Persons in different names, shall not be under a declaration of ineligibility for corrupt, fraudulent, collusive, coercive, or obstructive practices as stated under ITT Sub Clause 4.4.

5.7 The Tenderer with a poor performance, consistent history of litigation or arbitration awards against it shall not be eligible to Tender.

5.8 The Tenderer shall not be insolvent, be in receivership, be bankrupt, be in the process of bankruptcy, be not temporarily
barred from undertaking business and it shall not be the subject of legal proceedings for any of the foregoing.

5.9 The Tenderer shall have fulfilled its obligations to pay taxes and social security contributions under the provisions of laws and regulations of the country of its origin.

5.10 Tenderers shall provide such evidence of their continued eligibility satisfactory to the Procuring Entity, as the Procuring Entity will reasonably request.

5.11 These requirements for eligibility will extend, as applicable, to each JVCA partner and Subcontractor proposed by the Tenderer.

6. Eligible Materials, Equipment and Associated Services

6.1 All materials, equipment and associated services to be supplied under the Contract are from eligible sources, unless their origin is from a country specified in the TDS.

6.2 For the purposes of this Clause, “origin” means the place where the Materials and Equipments are mined, grown, cultivated, produced or manufactured or processed, or through manufacturing, processing, or assembly, another commercially recognized new product results that differs substantially in its basic characteristics from its components or the place from which the associated services are supplied.

6.3 The origin of materials and equipment and associated services is distinct from the nationality of the Tenderer.

7. Site Visit

7.1 The Tenderer is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Tender and entering into a contract for construction of the Works.

7.2 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter into its premises and lands for the purpose of such visit, but only upon the express condition that the Tenderer, its personnel, and agents will release and indemnify the Procuring Entity and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.

7.3 The Tenderer should ensure that the Procuring Entity is informed of the visit in adequate time to allow it to make appropriate arrangements.

7.4 The costs of visiting the Site shall be at the Tenderer’s own expense.
8. Tender Document: General

8.1 The Sections comprising the Tender Document are listed below, and should be read in conjunction with any Addendum issued under ITT Clause 11.

- Section 1 Instructions to Tenderers (ITT)
- Section 2 Tender Data Sheet (TDS)
- Section 3 General Conditions of Contract (GCC)
- Section 4 Particular Conditions of Contract (PCC)
- Section 5 Tender and Contract Forms
- Section 6 Bill of Quantities (BOQ) and Price Schedule
- Section 7 General Specifications
- Section 8 Particular Specifications
- Section 9 Drawings

8.2 The Procuring Entity is not responsible for the completeness of the Tender Document and their addenda, if these were not purchased directly from the Procuring Entity, or through its agent as stated in the TDS.

8.3 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document as well as in addendum to Tender, if any.

9. Clarification of Tender Document

9.1 A prospective Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity’s address and within time as indicated in the TDS.

9.2 A Procuring Entity is not obliged to answer any clarification request received after that date as stated under ITT Sub Clause 9.1.

9.3 The Procuring Entity shall respond in writing within five (5) working days of receipt of any such request for clarification received under ITT Sub Clause 9.1.

9.4 The Procuring Entity shall forward copies of its response to all those who have purchased the Tender Document, including a description of the enquiry but without identifying its source.

9.5 Should the Procuring Entity deem it necessary to revise the Tender Document as a result of a clarification, it will do so following the procedure under ITT Clause 11 and ITT Sub Clause 42.2.

10. Pre-Tender Meeting

10.1 To clarify issues and to answer questions on any matter arising in the Tender Document, the Procuring Entity may, if stated in the TDS, hold a pre-Tender Meeting at the place, date and time as specified in the TDS. All potential Tenderers are encouraged and invited to attend the meeting, if it is held.

10.2 The Tenderer is requested to submit any questions in writing so as to reach the Procuring Entity no later than one day prior to the date of the meeting.

10.3 Minutes of the pre-Tender meeting, including the text of the
questions raised and the responses given, together with any responses prepared after the meeting, will be transmitted within five (5) working days after holding the meeting to all those who purchased the Tender document and to even those who did not attend the meeting. Any revision to the Tender document listed in ITT Sub-Clause 8.1 that may become necessary as a result of the pre-Tender meeting will be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT Sub Clause 11 and not through the minutes of the Pre-Tender meeting.

10.4 Non-attendance at the Pre-Tender meeting will not be a cause for disqualification of a Tenderer.

11. Addendum to Tender Document

11.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity, on its own initiative or in response to an inquiry in writing from a Tenderer, having purchased the Tender Document, or as a result of a Pre-Tender meeting may revise the Tender Document by issuing an Addendum.

11.2 The Addendum issued under ITT Sub Clause 11.1 shall become an integral part of the Tender Document and shall have a date and an issue number and must be circulated by fax, mail or e-mail, to Tenderers who have purchased the Tender Documents, within three (3) working days of issuance of such Addendum, to enable Tenderers to take appropriate action.

11.3 The Tenderers will acknowledge receipt of an Addendum within three (3) working days.

11.4 Procuring Entities shall also ensure posting of the relevant addenda with the reference number and date on their websites including notice boards, where the Procuring Entities had originally posted the IFTs.

11.5 To give a prospective Tenderer reasonable time in which to take an addendum into account in preparing its Tender, the Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders, pursuant to ITT Sub Clause 42.2.

11.6 If an addendum is issued when time remaining is less than one-third of the time allowed for the preparation of Tenders, a Procuring Entity at its discretion shall extend the deadline by an appropriate number of days for the submission of Tenders, depending upon the nature of the Procurement requirement and the addendum. In any case, the minimum time for such extension shall not be less than three (3) working days.
C. Qualification Criteria

12. General Criteria

12.1 The Tenderer shall possess the necessary professional and technical qualifications and competence, financial resources, equipment and other physical facilities, managerial capability, specific experience, reputation, and the personnel, to perform the contract.

12.2 To qualify for multiple number of contracts/lots in a package made up of this and other individual contracts/lots for which tenders are invited in the Invitation for Tenders, the Tenderer shall demonstrate having resources and experience sufficient to meet the aggregate of the qualifying criteria for the individual contracts.

13. Litigation History

13.1 Litigation history shall comply with the requirement as specified in ITT 15.1(c).

14. Experience Criteria

14.1 The Tenderer shall have the following minimum level of construction experience to qualify for the performance of the Works under the Contract:

(a) a minimum number of years of general experience in the construction of works as Prime Contractor or Subcontractor or Management Contractor as specified in the TDS; and

(b) Specific experience as a Prime Contractor or Subcontractor or Management Contractor in construction works of a nature, complexity and methods/construction technology similar to the proposed Works in at least a number of contract(s) and of a minimum value over the period, as specified in the TDS.

15. Financial Criteria

15.1 The Tenderer shall have the following minimum level of financial capacity to qualify for the performance of the Works under the Contract.

(a) the average annual construction turnover as specified in the TDS during the period specified in the TDS;

(b) availability of minimum liquid assets or working capital or credit facilities, as specified in the TDS; and

(c) satisfactory resolution of all claims, arbitrations or other litigation cases and shall not have serious negative impact on the financial capacity of the Tenderer.

16. Personnel Capacity

16.1 The Tenderer shall have the following minimum level of personnel capacity to qualify for the performance of the Works under the Contract:

(a) a Construction Project Manager, Engineers, and other key staff with qualifications and experience as specified in the TDS;

17. Equipment Capacity

17.1 The Tenderer shall own suitable equipment and other physical
18. Joint Venture, Consortium or Association (JVCA)

18.1 The Tenderer may participate in the procurement proceedings forming a Joint Venture, Consortium or Associations (JVCA) by an agreement, executed case by case on a non-judicial stamp of value as stated in TDS or alternately with the intent to enter into such an agreement supported by a Letter of Intent along with the proposed agreement duly signed by all partners of the intended JVCA and authenticated by a Notary Public.

18.2 The figures for each of the partners of a JVCA shall be added together to determine the Tenderer’s compliance with the minimum qualifying criteria; however, for a JVCA to qualify, lead partner and its other partners must meet the criteria stated in the TDS. Failure to comply with these requirements will result in rejection of the JVCA Tender. Subcontractors’ experience and resources will not be taken into account in determining the Tenderer’s compliance with the qualifying criteria.

18.3 Each partner of the JVCA shall be jointly and severally liable for the execution of the Contract, all liabilities and ethical and legal obligations in accordance with the Contract terms.

18.4 The JVCA shall nominate a Representative (partner-in-charge) who shall have the authority to conduct all business for and on behalf of any and all the partners of the JVCA during the tendering process and, in the event the JVCA is awarded the Contract, during contract execution including the receipt of payments for and on behalf of the JVCA.

18.5 Each partner of the JVCA shall complete the JVCA Partner Information (Form PW3-3) for submission with the Tender.

19. Subcontractor(s)

19.1 A Tenderer may intend to subcontract an activity or part of the Works, in which case such elements and the proposed Subcontractor shall be clearly identified.

19.2 The Procuring Entity may require Tenderers to provide more information about their subcontracting arrangements. If any Subcontractor is found ineligible or unsuitable to carry out the subcontracted tasks, the Procuring Entity may request the Tenderer to propose an acceptable substitute.

19.3 The Procuring Entity may also select nominated Subcontractor(s) to execute certain specific components of the Works and if so, those will be specified in the TDS.

19.4 The successful Tenderer shall under no circumstances assign the Works or any part of it to a Subcontractor.

19.5 Each Subcontractor shall complete the Subcontractor Information (Form PW3-4) for submission with the Tender.
D. Tender Preparation

20. Only one Tender
20.1 A Tenderer shall submit only one (1) Tender for each lot, either individually or as a JVCA. The Tenderer who submits or participates in more than one (1) Tender in one (1) lot will cause all the Tenders of that particular Tenderer to be rejected.

21. Cost of Tendering
21.1 The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.

22. Issuance and Sale of Tender Document
22.1 A Procuring Entity shall make Tender Documents available immediately to the potential Tenderers, requesting and willing to purchase at the corresponding price if the advertisement has been published in the newspaper.

22.2 There shall not be any pre-conditions whatsoever, for sale of Tender Documents and the sale of such Document shall be permitted up to the day prior to the day of deadline for the submission of Tender.

23. Language of Tender
23.1 The Tender shall be written in the English language. Correspondences and documents relating to the Tender may be written in English or Bangla. Supporting documents and printed literature furnished by the Tenderer that are part of the Tender may be in another language, provided they are accompanied by an accurate translation of the relevant passages in the English or Bangla language, in which case, for purposes of interpretation of the Tender, such translation shall govern.

23.2 The Tenderer shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.

24. Contents of Tender
24.1 The Tender prepared by the Tenderer will comprise the following:
   (a) the Tender Submission Letter in accordance with ITT Clause 25 (Form PW3-1);
   (b) Tenderer Information in accordance with ITT Clauses 5, 29 and 32 (Form PW3-2);
   (c) the priced Bill of Quantities for each lot in accordance with ITT Clauses 25, 27 and 28;
   (d) Tender Security as stated under ITT Clauses 35, 36 and 37.
   (e) alternatives, if permissible, as stated under ITT Clause 26;
   (f) written confirmation authorizing the signatory of the Tender to commit the Tenderer, as stated under ITT Sub Clause 40.3;
   (g) Valid Trade license;
   (h) documentary evidence of Tax Identification Number (TIN) and Value Added Tax (VAT) as a proof of taxation obligations as stated under ITT Sub Clause 5.9;
   (i) documentary evidence as stated under ITT Clause 29 establishing the Tenderer’s qualifications to perform the Contract if its tender is accepted;
   (j) Technical Proposal describing work plan & method,
personnel, equipment and schedules as stated under ITT Clause 31;

(k) documentary evidence as stated under ITT Clause 32 establishing the minimum qualifications of the Tenderer required to be met for due performance of the Works and physical services under the Contract; and

(l) any other document as specified in the TDS.

24.2 In addition to the requirements stated under ITT Sub Clause 24.1, Tenders submitted by a JVCA or proposing a Subcontractor shall include:

(a) a Joint Venture Agreement entered into by all partners, executed on a non-judicial stamp of value or equivalent as stated under ITT Sub Clause 18.1; or

(b) a Letter of Intent along with the proposed agreement duly signed by all partners of the intended JVCA with the declaration that it will execute the Joint Venture agreement in the event the Tenderer is successful;

(c) the JVCA Partner Information (Form PW3-3);

(d) the Subcontractor Information (Form PW3-4).

25. Tender Submission Letter and Bill of Quantities

25.1 The Tenderer shall submit the Tender Submission Letter (Form PW3-1), which shall be completed without any alterations to its format, filling in all blank spaces with the information requested, failing which the Tender may be rejected as being incomplete.

25.2 The Tenderer shall submit the priced Bill of Quantities using the form(s) furnished in Section 6: Bill of Quantities and Price Schedule.

25.3 If in preparing its Tender, the Tenderer has made errors in the unit rate or price or the total price, and wishes to correct such errors prior to submission of its Tender, it may do so, but shall ensure that each correction is initialled by the authorised person of the Tenderer.

26. Alternatives

26.1 Unless otherwise stated in the TDS, alternatives shall not be considered.

26.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the TDS, as will the method of evaluating different times for completion.

26.3 Except as provided under ITT Sub Clause 26.4, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity’s design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, designs, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details.

26.4 When specified in ITT clause 26.1, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the TDS.
27. Tender Prices, Discounts and Price Adjustment

27.5 Only the technical alternatives, if any, of the lowest evaluated Tenderer conforming to the basic technical requirements will be considered by the Procuring Entity.

27.1 The prices and discounts quoted by the Tenderer in the Tender Submission Letter (Form PW3-1) and in the Bill of Quantities (BOQ) shall conform to the requirements specified below.

27.2 The Tenderer shall fill in unit rates or prices for all items of the Works both in figures and in words as described in the BOQ.

27.3 The items quantified in the BOQ for which no unit rates or prices have been quoted by the Tenderer will not be paid for, by the Procuring Entity when executed and shall be deemed covered by the amounts of other rates or prices in the BOQ and, it shall not be a reason to change the Tender price.

27.4 The Procuring Entity may, if necessary, require the Tenderer to submit the detail breakdown of the unit rates or prices quoted by the Tenderer for the facilitation of the Tender proceedings.

27.5 The price to be quoted in the Tender Submission Letter, as stated under ITT Sub Clause 25.1, shall be the total price of the Tender, excluding any discounts offered.

27.6 The Tenderer shall quote any unconditional discounts and the methodology for application of discount in the Tender Submission Letter as stated under ITT Sub Clause 25.1.

27.7 Tenderers wishing to offer any price reduction for the award of more than one lot shall specify in their Tender the price reductions applicable to each lot, or alternatively, to any combination of lots within the package. Price reductions or discounts will be submitted as stated under ITT Sub Clause 27.1, provided the Tenders for all lots are submitted and opened together.

27.8 All applicable taxes, custom duties, VAT and other levies payable by the Contractor under the Contract, or for any other causes, as of the date twenty-eight (28) days prior to the deadline for submission of Tenders, shall be included in the unit rates and prices and the total Tender price submitted by the Tenderer.

27.9 Unless otherwise provided in the TDS and the Contract, the price of a Contract shall be fixed in which case the unit rates or prices may not be modified in response to changes in economic or commercial conditions.

27.10 If so indicated under ITT Sub Clause 27.9, Tenders are being invited with a provision for price adjustments. The unit rates or prices quoted by the Tenderer are subject to adjustment during the performance of the Contract in accordance with the provisions of GCC Clause 71 and, in such case the Procuring Entity shall provide the indexes and weightings or coefficients in Appendix to the Tender for the price adjustment formulae specified in the PCC.
27.11 The Procuring Entity may require the Tenderer to justify its proposed indexes, if any of those as stated under ITT Sub Clause 27.10, are instructed to be quoted by the Tenderer in **Appendix to the Tender**.

28. Tender Currency

28.1 The Tenderer shall quote all prices in the Tender Submission Letter and in the Bill of Quantities in Bangladesh Taka currency unless otherwise specified in the **TDS**.

29. Documents Establishing Eligibility of the Tenderer

29.1 A Tenderer, if applying as a sole Tenderer, shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, it shall:

(a) complete the eligibility declarations in the Tender Submission Letter (**Form PW3-1**);

(b) complete the Tenderer Information (**Form PW3-2**);

(c) provide completed Subcontractor Information (**Form PW3-4**), if it intends to engage any Subcontractor(s).

29.2 A Tenderer, if applying as a partner of an existing or intended JVCA shall submit documentary evidence to establish its eligibility as stated under ITT Clause 5 and, in particular, in addition to as specified in ITT Sub Clause 29.1, it shall:

(a) provide for each JVCA partner, completed JVCA Partner Information (**Form PW3-3**);

(b) provide the JVCA agreement or Letter of Intent along with the proposed agreement of the intended JVCA as stated in ITT Sub Clause 18.1.

30. Documents Establishing the Eligibility and Conformity of Materials, Equipment and Services

30.1 The Tenderer shall submit documentary evidence to establish the origin of all Materials, Equipment and services to be supplied under the Contract as stated under ITT Clause 6.

30.2 To establish the conformity of the Materials, Equipment and services to be supplied under the Contract, the Tenderer shall furnish, as part of its Tender, the documentary evidence (which may be in the form of literature, specifications and brochures, drawings or data) that these conform to the technical specifications and standards specified in **Section 7, General Specifications** and **Section 8, Particular Specifications**.

31. Documents Establishing Technical Proposal

31.1 The Tenderer shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in **TDS**, in sufficient detail to demonstrate the adequacy of the Tenderer’s proposal to meet the work requirements and the completion time.

32. Documents Establishing the

32.1 Tenderers shall complete and submit the Tenderer Information (**Form PW3-2**) and shall include documentary evidence, as
Tenderer’s Qualification applicable to satisfy the following:

(a) general experience of construction works as stated under ITT Sub Clause 14.1(a);

(b) specific experience in construction works of similar nature and size as stated under ITT Sub Clauses 14.1(b);

(c) average annual construction turnover for a period as stated under ITT Sub Clause 15.1(a);

(d) adequacy of working capital for this Contract i.e. access to line(s) of credit and availability of other financial resources as stated under ITT Sub Clause 15.1(b);

(e) technical and administrative personnel along with their qualification and experience proposed for the Contract as stated under ITT Clause 16;

(f) major items of construction equipment proposed to carry out the Contract as stated under ITT Clause 17;

(g) authority to seek references from the Tenderer’s bankers or any other sources.

(h) information regarding any litigation, current or during the last five years, in which the Tenderer is involved, the parties concerned, and disputed amount;

(i) reports on the financial standing of the Tenderer, such as profit and loss statements and auditor’s reports for the past five years.

32.2 An Procuring Entity shall disqualify a Tenderer who submits a document containing false information for purposes of qualification or mislead or makes false representations in proof of qualification requirements. An Procuring Entity may declare such a Tenderer ineligible, either indefinitely or for a stated period of time, from participation in future procurement proceedings.

32.3 An Procuring Entity may disqualify a Tenderer if it finds at any time that the information submitted concerning the qualifications of the Tenderer was materially inaccurate or materially incomplete. Also, an Procuring Entity may disqualify a Tenderer who has record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays, litigation history or financial failures.

33. Validity Period of Tender

33.1 Tenders shall remain valid for the period specified in the TDS after the date of Tender submission deadline prescribed by the Procuring Entity. A Tender valid for a period shorter than that specified will be rejected by the Procuring Entity as non-responsive.

34. Extension of Tender Validity and Tender Security

34.1 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may solicit the Tenderers’ consent to an extension of the period of validity of their Tenders.

34.2 The request and the responses shall be made in writing. Validity of the tender security provided under ITT Clause 35 shall also be suitably extended for twenty eight (28) days beyond the new date for
the expiry of the Tender Validity. If a Tenderer does not respond or refuses the request it shall not forfeit its tender security, but its tender shall no longer be considered in the evaluation proceedings. A Tenderer agreeing to the request will not be required or permitted to modify its tender.

35. Tender Security

35.1 The Tenderer shall furnish as part of its Tender, in favour of the Procuring Entity or as otherwise directed on account of the Tenderer, a Tender Security in original form and in the amount, as specified in the TDS.

35.2 If the Tender is a Joint Venture, the Tenderer shall furnish as part of its Tender, in favour of the Procuring Entity or as otherwise directed on account of the title of the existing or intended JVCA or any of the partners of that JVCA or in the names of all future partners as named in the Letter of Intent of the JVCA, a Tender Security in original form and in the amount as stated under ITT Sub Clause 35.1.

36. Form of Tender Security

36.1 The Tender Security shall:

(a) at the Tenderer’s option, be either;
   i. in the form of a bank draft or pay order, or
   ii. in the form of an irrevocable bank guarantee issued by a scheduled Bank of Bangladesh, in the format (Form PW3-6) furnished in Section 5: Tender and Contract Forms;

(b) be payable promptly upon written demand by the Procuring Entity in the case of the conditions listed in ITT Sub Clause 39.1 being invoked; and

(c) remain valid for at least twenty eight (28) days beyond the expiry date of the Tender Validity in order to make a claim in due course against a Tenderer in the circumstances as stated under ITT Sub Clause 39.1.

37. Authenticity of Tender Security

37.1 The authenticity of the Tender Security submitted by a Tenderer may be examined and verified by the Procuring Entity at its discretion in writing from the Bank issuing the security.

37.2 If a Tender Security is found to be not authentic, the Procuring Entity may proceed to take measures against that Tenderer as stated under ITT Sub Clause 4.4.

37.3 A Tender not accompanied by a valid Tender Security will be rejected by the Procuring Entity.

38. Return of Tender Security

38.1 No Tender Securities shall be returned by the Tender Opening Committee (TOC) during and after the opening of the Tenders.

38.2 No Tender Security shall be returned to the Tenderers before contract signing, except to those who are found unsuccessful.

38.3 Unsuccessful Tenderer’s tender security will be discharged or returned as soon as possible but within 28 days of the end of the tender validity period specified in ITT Sub-Clauses 33.1.
38.4 The tender security of the Successful Tenderer will be discharged upon the Tenderer’s furnishing of the performance security pursuant to ITT Clause 33 and signing the Agreement.

39. Forfeiture of Tender Security

39.1 The Tender Security may be forfeited, if a Tenderer:

(a) withdraws its Tender after opening of Tenders but within the validity of the Tender as stated under ITT Clause 33 and 34; or

(b) refuses to accept a Notification of Award as stated under ITT Sub Clause 63.1; or

(c) fails to furnish Performance Security as stated under ITT Sub Clause 64.1 and 64.2; or

(d) refuses to sign the Contract as stated under ITT Sub Clause 69.2; or

(e) does not accept the correction of the Tender price following the correction of the arithmetic errors as stated under ITT Clause 55.

40. Format and Signing of Tender

40.1 The Tenderer shall prepare one (1) original of the documents comprising the Tender as described in ITT Clause 24 and clearly mark it "ORIGINAL." In addition, the Tenderer shall prepare the number of copies of the Tender, as specified in the TDS and clearly mark each of them "COPY." In the event of any discrepancy between the original and the copies, the ORIGINAL shall prevail.

40.2 Alternatives, if permitted in accordance with ITT Clause 26, shall be clearly marked "Alternative".

40.3 The original and each copy of the Tender shall be typed or written in indelible ink and shall be signed by the Person duly authorized to sign on behalf of the Tenderer. This authorization shall be attached to the Tender Submission Letter (Form PW3-1). The name and position held by each Person(s) signing the authorization must be typed or printed below the signature. All pages of the original and of each copy of the Tender, except for un-amended printed literature, shall be numbered sequentially and signed or initialled by the person signing the Tender.

40.4 Any interlineations, erasures, or overwriting will be valid only if they are signed or initialled by the Person(s) signing the Tender.
E. Tender Submission

41. Sealing, Marking and Submission of Tender

41.1 The Tenderer shall enclose the original in one (1) envelope and all the copies of the Tender, including the alternatives, if permitted under ITT Clause 26, in another envelope, duly marking the envelopes as “ORIGINAL” “ALTERNATIVE” (if permitted) and “COPY.” These sealed envelopes will then be enclosed and sealed in one (1) single outer envelope.

41.2 The inner and outer envelopes shall:
   (a) be addressed to the Procuring Entity at the address as stated under ITT Sub Clause 42.1;
   (b) bear the name of the Tender and the Tender Number as stated under ITT Sub Clause 1.1;
   (c) bear the name and address of the Tenderer;
   (d) bear a statement “DO NOT OPEN BEFORE -----------------------” the time and date for Tender opening as stated under ITT Sub Clause 48.1;
   (e) bear any additional identification marks as specified in the TDS.

41.3 The Tenderer is solely and entirely responsible for pre-disclosure of Tender information if the envelope(s) are not properly sealed and marked.

41.4 Tenders shall be delivered by hand or by mail, including courier services at the address(s) as stated under ITT Sub Clause 42.1.

41.5 The Procuring Entity will, on request, provide the Tenderer with acknowledgement of receipt showing the date and time when it’s Tender was received.

42. Deadline for Submission of Tender

42.1 Tenders shall be delivered to the Procuring Entity at the address specified in the TDS and no later than the date and time specified in the TDS.

42.2 The Procuring Entity may, at its discretion, extend the deadline for submission of Tender as stated under ITT Sub Clause 42.1, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline will thereafter be subject to the new deadline as extended.

42.3 In general, the submission of Tenders will not be allowed in more than one place. If, in exceptional cases, for procurement using government’s own fund, submission of Tenders is allowed in more than one location/place, name of such primary and secondary location/place(s) shall be as specified in the TDS.

43. Late Tender

43.1 Any Tender received by the Procuring Entity after the deadline for submission of Tenders as stated under ITT Sub Clause 42.1 shall be declared LATE, rejected, and returned unopened to the Tenderer.

44. Notice for Modification, Substitution or
Withdrawal of Tender the authorization; provided that such written notice including the affidavit is received by the Procuring Entity prior to the deadline for submission of Tenders as stated under ITT Clause 42.

45. Tender Modification

45.1 The Tenderer shall not be allowed to retrieve its original Tender, but shall be allowed to submit corresponding modification to its original Tender marked as “MODIFICATION”.

46. Tender Substitution

46.1 The Tenderer shall not be allowed to retrieve its original Tender, but shall be allowed to submit another Tender marked as “SUBSTITUTION”.

47. Tender Withdrawal

47.1 The Tenderer shall be allowed to withdraw its Tender by a Letter of Withdrawal marked as “WITHDRAWAL”.

F. Tender Opening and Evaluation

48. Tender Opening

48.1 Tenders shall be opened in one location, immediately, but no later than one hour, after the deadline for submission of Tenders at the place as specified in the TDS. In case of submission of tender for procurement using Government’s own fund, tenders shall be opened at the primary place of submission within three hours of the deadline for submission of tenders.

48.2 Persons not associated with the Tender may not be allowed to attend the public opening of Tenders.

48.3 The Tenderers’ representatives shall be duly authorised by the Tenderer. Tenderers or their authorised representatives will be allowed to attend and witness the opening of Tenders, and will sign a register evidencing their attendance.

48.4 The authenticity of withdrawal or substitution of, or modifications to original Tender, if any made by a Tenderer in specified manner, shall be examined and verified by the Tender Opening Committee (TOC) based on documents submitted as stated under ITT Sub Clause 44.1.

48.5 Ensuring that only the correct (M), (S), (A), (O) envelopes are opened, details of each Tender will be dealt with as follows:

(a) the Chairperson of the Tender Opening Committee will read aloud each Tender and record in the Tender Opening Sheet (TOS):

   (i) the name and address of the Tenderer;
   (ii) state if it is a withdrawn, modified, substituted or original Tender;
   (iii) the Tender price;
   (iv) any discounts;
   (v) any alternatives;
   (vi) the presence or absence of any requisite Tender Security; and
(vii) such other details as the Procuring Entity, at its discretion, may consider appropriate

(b) only discounts and alternatives read aloud at the Tender opening will be considered in evaluation.

(c) all pages of the original version of the Tender, except for un-amended printed literature, will be initialled by members of the Tender Opening Committee.

48.6 Upon completion of Tender opening, all members of the Tender Opening Committee and the Tenderers or Tenderer’s duly authorised representatives attending the Tender opening shall sign by name, address, designation, the Tender Opening Sheet, copies of which shall be issued to the Head of the Procuring Entity or an officer authorised by him or her and also to the members of the Tender Opening Committee and any authorised Consultants and, to the Tenderers immediately.

48.7 The omission of a Tenderer’s signature on the record shall not invalidate the contents and effect of the record under ITT Sub Clause 48.6.

48.8 No Tender will be rejected at the Tender opening stage except the LATE Tenders as stated in the ITT Clause 43.

49. Evaluation of Tenders

49.1 Tenders shall be examined and evaluated only on the basis of the criteria specified in the Tender Document.

49.2 The Procuring Entity’s Tender Evaluation Committee (TEC) shall examine, evaluate and compare Tenders that are substantially responsive to the requirements of Tender Documents in order to identify the successful Tenderer.

50. Evaluation Process

50.1 The TEC will consider a Tender responsive that conforms in all respects to the requirements of the Tender Document without material deviation, reservation, or omission. The evaluation process should begin immediately after tender opening, following four broad steps:

(a) Preliminary examination
(b) Technical examination and responsiveness
(c) Financial evaluation and price comparison
(d) Post-qualification of the Tender.

51. Preliminary Examination

51.1 The Procuring Entity shall examine the tenders to confirm that all documentation requested in ITT Clause 24 has been provided, to determine the completeness of each document submitted.

51.2 The Procuring Entity shall confirm that the following documents and information have been provided in the tender. If any of these documents or information is missing, the offer shall be rejected.

(a) Tender Submission Letter;
(b) Priced Bill of Quantities;
52. Technical Responsiveness and Technical Evaluation

52.1 The Procuring Entity’s determination of a tender’s responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.

52.2 A substantially responsive tender is one that conforms in all respects to the requirements of the Tender Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:

(a) affects in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
(b) limits in any substantial way, or is inconsistent with the Tender Documents, the Procuring Entity’s rights or the Tenderer’s obligations under the Contract; or
(c) if rectified would unfairly affect the competitive position of other Tenderers presenting substantially responsive tenders.

52.3 If a tender is not substantially responsive to the Tender Document, it shall be rejected by the Procuring Entity and shall not subsequently be made responsive by the Tenderer by correction of the material deviation, reservation, or omission.

52.4 There shall be no requirement as to the minimum number of responsive tenders.

52.5 There shall be no automatic exclusion of tenders which are above or below the official estimate.

52.6 The Procuring Entity shall now examine the tender to confirm that all terms and conditions specified in the GCC and the PCC have been accepted by the Tenderer without any material deviation or reservation.

52.7 The Procuring Entity shall evaluate the technical aspects of the tender submitted in accordance with ITT Clauses 30, 31 and 32, to confirm that all requirements specified in Section 7: General Specifications and Section 8: Particular Specifications of the Tender Document have been met without any material deviation or reservation.

52.8 If, after the examination of the terms and conditions and the technical aspects of the tender, the Procuring Entity determines that the tender is not substantially responsive in accordance with ITT Sub-Clauses 52.6 and 52.7, it shall reject the tender.

52.9 Provided that a tender is substantially responsive, the Procuring Entity may request that the Tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the tender related to documentation requirements. Such omission shall not be related to any aspect of the rates of the tender reflected in the Priced Bill of
Quantities. Failure of the Tenderer to comply with the request may result in the rejection of its tender.

52.10 The TEC may regard a Tender as responsive even if it contains;

(a) minor or insignificant deviations which do not meaningfully alter or depart from the technical specifications, characteristics and commercial terms and, conditions or other mandatory requirements set out in the Tender Document; or

(b) errors or oversights, that if corrected, would not alter the key aspects of the Tender.

53. Clarification on Tender

53.1 The TEC may ask Tenderers for clarification of their Tenders, including breakdowns of unit rates or prices, in order to facilitate the examination and evaluation of Tenders. The request for clarification by the TEC and the response from the Tenderer shall be in writing, and Tender clarifications which may lead to a change in the substance of the Tender or in any of the key elements of the Tender pursuant to ITT Sub Clause 52.2, will neither be sought nor be permitted.

53.2 Changes in the Tender price shall also not be sought or permitted, except to confirm the correction of arithmetical errors discovered by the TEC in the evaluation of the Tenders, as stated under ITT Sub Clause 55.1.

54. Restrictions on Disclosure of Information

54.1 After the opening of tenders, information relating to the examination, clarification, and evaluation of tenders and recommendations for award shall not be disclosed to tenderers or other persons not officially concerned with the evaluation process until the award of the contract is announced.

54.2 Any effort by a Tenderer to influence a Procuring Entity in its decision concerning the evaluation of Tenders, Contract awards may result in the rejection of its Tender as well as further action in accordance with Section 64 (5) of the Public Procurement Act, 2006.

55. Correction of Arithmetical Errors

55.1 Provided that the Tender is substantially responsive, the TEC shall correct arithmetical errors on the following basis:

(a) if there is a discrepancy between the unit price and the line item total price that is obtained by multiplying the unit price and quantity, the unit price will prevail and the line item total price shall be corrected, unless in the opinion of the TEC there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted will govern and the unit price will be corrected; and

(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 unit price in words will prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to
56. **Financial Evaluation**

56.1 The TEC will evaluate each Tender that has been determined, up to this stage of the evaluation, to be substantially responsive to the requirements set out in the Tender Document.

56.2 To evaluate a Tender, the TEC will consider the following:

(a) the Tender price, excluding Provisional Sums and the provision, if any, for contingencies in the priced Bill of Quantities, but including Daywork items, where priced competitively;

(b) adjustments for correction of arithmetical errors pursuant to ITT Sub Clause 55.1;

(c) adjustments in order to take into consideration the unconditional discounts or methodology for application of the discount offered pursuant to ITT Sub Clause 27.7;

(d) adjustments for any other acceptable variations or deviations pursuant to ITT Sub Clause 52.10.

56.3 Variations, deviations, alternatives and other factors which are in excess of the requirements of the Tender Document or otherwise result in unsolicited benefits for the Procuring Entity will not be taken into account in Tender evaluation.

56.4 The estimated effect of any price adjustment provisions under GCC Clause 71, applied over the period of execution of the Contract, will not be taken into account in Tender evaluation.

56.5 If so indicated in the ITT Sub Clause 1.1 the Procuring Entity may award one or multiple lots to one Tenderer following the methodology specified in ITT Sub Clause 56.6.

56.6 To determine the lowest-evaluated lot or combination of lots, the TEC will take into account:

(a) the experience and resources sufficient to meet the aggregate of the qualifying criteria for the individual lot;

(b) the lowest-evaluated Tender for each lot calculated in accordance with all the requirements of Evaluation Criteria;

(c) the price reduction on account of discount per lot or combination of lots and the methodology for application of the discount as offered by the Tenderer in its Tender; and

(d) the Contract-award sequence that provides the optimum economic combination on the basis of least overall cost of the total Contract package taking into account any limitations due to constraints in Works or execution capacity determined in accordance with the post-qualification criteria stated under ITT Clause 59.
56.7 If the tender, which results in the lowest Evaluation Tender Price, is Substantially below the updated official estimate or seriously unbalanced as a result of front loading in the opinion of the Procuring Entity, the Procuring Entity may require the Tenderer to produce details price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Procuring Entity may require that the amount of the performance security set forth in ITT Clause 64 be increased at the expenses of the Tenderer to a level sufficient to protect the Procuring Entity against financial loss in the event of default of the successful Tenderer under the Contract.

57. Price Comparison

57.1 The TEC will compare all substantially responsive Tenders to determine the lowest-evaluated Tender, in accordance with ITT Clause 56.

57.2 In the extremely unlikely event that there is a tie for the lowest evaluated price, the Tenderer with the superior past performance with the Procuring Entity shall be selected, whereby factors such as delivery period, quality of Works delivered, complaints history and performance indicators could be taken into consideration.

57.3 In the event that there is a tie for the lowest price and none of the Tenderers has the record of past performance with the Procuring Entity as stated under ITT Sub Clause 57.2, then the Tenderer shall be selected, subject to firm confirmation through the Post-qualification process, after consideration as to whether the Tenderer has demonstrated in its Tender superior past performance with the other Procuring Entities or a more efficient work programme and work methodology.

57.4 The successful Tenderer as stated under ITT Sub Clauses 57.1, 57.2 and 57.3 shall not be selected through lottery under any circumstances.

58. Negotiations

58.1 No negotiations shall be held during the Tender evaluation or award with the lowest or any other Tenderer.

58.2 The Procuring Entity through the TEC may, however, negotiate with the lowest evaluated Tenderer with the objective to reduce the Contract price by reducing the scope of works or a reallocation of risks and responsibilities, only when it is found that the lowest evaluated Tender is significantly higher than the official estimate; the reasons for such higher price being duly analyzed.

58.3 If the Procuring Entity decides to negotiate for reducing the scope of the requirements under ITT Sub Clause 58.2, it will be required to guarantee that the lowest Tenderer remains the lowest Tenderer even after the scope of work has been revised and shall further be ensured that the objective of the Procurement will not be seriously affected through this reduction.

58.4 In the event that the Procuring Entity decides because of a high Tender price to reduce the scope of the requirements to meet the available budget, the Tenderer is not obliged to accept the award.
and shall not be penalised in any way for rejecting the proposed award.

59. Post-qualification

59.1 The Procuring Entity shall determine to its satisfaction whether the Tenderer that is selected as having submitted the lowest evaluated and substantially responsive tender is qualified to perform the Contract satisfactorily.

59.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer’s qualifications submitted by the Tenderer, pursuant to ITT Clause 32, clarifications in accordance with ITT Clause 53 and the qualification criteria indicated in ITT Clauses 12 to 17. Factors not included therein shall not be used in the evaluation of the Tenderer’s qualification.

59.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in rejection of the tenderer’s tender, in which event the Procuring Entity shall proceed to the next lowest evaluated tender to make a similar determination of that Tenderer’s capabilities to perform satisfactorily.

59.4 The TEC may verify information contained in the Tender by visiting the premises of the Tenderer as a part of the post qualification process, if practical and appropriate.

60. Procuring Entity’s Right to Accept any or to Reject Any or All Tenders

60.1 The Procuring Entity reserves the right to accept any tender, to annul the tender proceedings, or to reject any or all tenders at any time prior to contract award, without thereby incurring any liability to Tenderers, or any obligations to inform the Tenderers of the grounds for the Procuring Entity’s action.

61. Informing Reasons for Rejection

61.1 Notice of the rejection will be given promptly within seven (7) days of decision taken by the Procuring Entity to all Tenderers and, the Procuring Entity will, upon receipt of a written request, communicate to any Tenderer the reason(s) for its rejection but is not required to justify those reason(s).

62. Award Criteria

62.1 The Procuring Entity shall award the Contract to the Tenderer whose offer is responsive to all the requirements of the Tender Document and that has been determined to be the lowest evaluated Tender, provided further that the Tenderer is determined to be Post-qualified in accordance with ITT Clause 59.

62.2 A Tenderer will not be required, as a condition for award, to undertake responsibilities not stipulated in the Tender documents, to change its price, or otherwise to modify its Tender.
63. Notification of Award

63.1 Prior to the expiry of the Tender Validity period and within seven (7) working days of receipt of the approval of the award by the Approving Authority, the Procuring Entity shall issue the Notification of Award (NOA) to the successful Tenderer.

63.2 The Notification of Award, attaching the contract as per the sample (Form PW3-7) to be signed, shall state:
(a) the acceptance of the Tender by the Procuring Entity;
(b) the price at which the contract is awarded;
(c) the amount of the Performance Security and its format;
(d) the date and time within which the Performance Security shall be submitted; and
(e) the date and time within which the Contract shall be signed.

63.3 Until a formal contract is signed, the Notification of Award will constitute a Contract, which shall become binding upon the furnishing of a Performance Security and the signing of the Contract by both parties.

64. Performance Security

64.1 The Performance Security shall be provided by the successful Tenderer in the amount as specified in the TDS and denominated in the currencies in which the Contract Price is payable.

64.2 The Procuring Entity may increase the amount of the Performance Security above the amounts as stated under ITT Sub Clause 64.1 but not exceeding twenty five (25) percent of the Contract price, if it is found that the Tender is Substantially below the updated official estimated or unbalanced as a result of front loading as stated under ITT Sub Clause 56.7.

64.3 The proceeds of the Performance Security shall be payable to the Procuring Entity unconditionally upon first written demand as compensation for any loss resulting from the Contractor’s failure to complete its obligations under the Contract.

65. Form and Time Limit for Furnishing of Performance Security

65.1 The Performance Security, as stated under ITT Clause 64, may be in the form of a Bank Draft, Pay Order or an irrevocable Bank Guarantee in the format (Form PW3-9), issued by any scheduled Bank of Bangladesh acceptable to the Procuring Entity.

65.2 Within fourteen (14) days from the date of acceptance of the Notification of Award (NOA) but not later than the date specified therein, the successful Tenderer shall furnish the Performance Security for the due performance of the Contract in the amount as stated under ITT Sub Clauses 64.1 or 64.2.

66. Validity of Performance Security

66.1 The Performance Security shall be required to be valid until a date twenty eight (28) days beyond the Intended Completion Date as specified in Tender Document.

67. Authenticity of Performance Security

67.1 The Procuring Entity may verify the authenticity of the Performance Security submitted by the successful Tenderer by sending a written request to the branch of the bank issuing the
Pay Order, Bank Draft or irrevocable Bank Guarantee in specified format.

68. Adjudicator

68.1 The Procuring Entity proposes the person named in the TDS to be appointed as Adjudicator under the Contract, at an hourly fee and for those reimbursable expenses specified in the TDS.

69. Contract Signing

69.1 At the same time as the Procuring Entity issues the Notification of Award (NOA), the Procuring Entity will send the draft Contract Agreement and all documents forming the Contract to the successful Tenderer.

69.2 Within twenty-one (21) days of receipt of the Agreement, but not later than twenty-eight (28) days of issuance of the NOA, the successful Tenderer shall sign, date, and return it to the Procuring Entity.

69.3 Failure of the successful Tenderer to submit the Performance Security, pursuant to ITT Sub-Clause 64.1, or sign the Contract, pursuant to ITT Sub-Clause 69.2, shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the next lowest evaluated Tenderer, whose offer is substantially responsive and is determined by the Procuring Entity to be qualified to perform the Contract satisfactorily.

70. Publication of Notification of Award of Contract

70.1 Notification of Awards for Contracts of Taka ten (10) million and above shall be notified by the Procuring Entity to the Central Procurement Technical Unit within seven (7) days of issuance of the NOA for publication in their website, and that notice shall be kept posted for not less than a month.

70.2 Notification of Award for Contracts below Taka ten (10) million, shall be published by the Procuring Entity on its Notice Board and where applicable on the website of the Procuring Entity and that notice shall be kept posted for not less than a month.

71. Debriefing of Tenderers

71.1 Debriefing of Tenderers by Procuring Entity shall outline the relative status and weakness only of his or her Tender requesting to be informed of the grounds for not accepting the Tender submitted by him or her, without disclosing information about any other Tenderer.

71.2 In the case of debriefing, confidentiality of the evaluation process shall be maintained.

72. Right to Complain

72.1 Any Tenderer has the right to complain in accordance with Section 29 of the Public Procurement Act 2006 and Part 12 of Chapter Three of the Public Procurement Rules, 2008.
## Section 2. Tender Data Sheet

*Instructions for completing Tender Data Sheet are provided in italics in parenthesis for the relevant ITT clauses*

<table>
<thead>
<tr>
<th>ITT Clause</th>
<th>Amendments of, and Supplements to, Clauses in the Instructions to Tenderers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. General</strong></td>
<td></td>
</tr>
</tbody>
</table>
| ITT 1.1 | The Procuring Entity is Bangladesh Power Development Board (BPDB) represented by The Director, Directorate of Purchase, Bangladesh Power Development Board, WAPDA Bhaban (9th Floor), Motijheel C/A, Dhaka -1000, Bangladesh.  
Consignee: **Director, Directorate of Renewable Energy and Research & Development, BPDB, Dhaka.**  
The Name of the Tender is: **Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis.** |
| ITT3.1 | The source of fund: Government of Bangladesh (GOB) financed. |
| ITT3.3 | The name of the Development Partner is: Not Applicable |
| ITT5.1 | Tenderers from the following countries are not eligible:  
Israel and countries having no diplomatic relation with the Government of the People's Republic of Bangladesh |
| ITT6.1 | Materials, Equipment and associated services from the following countries are not eligible:  
Israel and countries having no diplomatic relation with the Government of the People's Republic of Bangladesh |
| ITT 7.1 | Each Tenderer before submitting his/her Tender will carefully examine the tender requirements and will visit the site at their own cost to determine the existing conditions, facilities and limitations. Any neglect to delay or failure on the part of the tenderer to obtain reliable information upon the foregoing or any matter affecting the work and completion period shall not relieve the successful tenderer of his responsibilities, risks or liabilities until final acceptance of the work in case of award of the contract. |
| **B. Tender Document** |
| ITT8.2 | The following are authorised agents of the Procuring Entity for the purpose of issuing the Tender Document:  
Director, Directorate of Purchase  
Bangladesh Power Development Board  
WAPDA Bhaban (9th Floor)  
Motijheel C/A, Dhaka -1000, Bangladesh  
Telephone: 9550532; Fax: 8802-7126151 |
| ITT9.1 | For **clarification of Tender Document purposes** only, the Employer's address is:  
Attention: Secretary  
Address: WAPDA Building (1st floor), Motijheel C/A, Dhaka-1000.  
Telephone: +880-2-9554209  
Fax No.: +880-2-9564765 |
<table>
<thead>
<tr>
<th>ITT10.1</th>
<th>Not Applicable</th>
</tr>
</thead>
</table>

### C. Qualification Criteria

<table>
<thead>
<tr>
<th>ITT 14.1(a)</th>
<th>The minimum number of years of general experience of the Tenderer in the construction works as Prime Contractor or Subcontractor or Management Contractor shall be Three (03) years</th>
</tr>
</thead>
</table>
| ITT 14.1(b) | 1. The minimum specific experience for Prime Contractor/JVCA partner in Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project is as follows:  
   (i) Successfully completed at least 02 (two) contracts of design, supply, construction, testing & commissioning of power plant based on solid waste having at least capacity of 1 MW each within last 10 calendar years from the date of Tender Notice.  
   (ii) One of the above 02 (two) contracts must be Executed outside Tenderer’s country.  
   (iii) In support of experience as mentioned in Serial no. (i), Tenderer shall have to submit Satisfactory Performance Certificate (SPC) from the end user. The Satisfactory Performance Certificate (SPC) should be in end user’s letterhead pad in English stating at least 02 (two) years of satisfactory operation from the date of commissioning of the said plant and shall contain end-user’s full mailing address, e-mail address, website address, fax number and phone number for the convenience of authentication.  
2. The minimum specific experience for Prime Contractor/JVCA partner/Subcontractor in design, supply, construction, testing & commissioning of composting plant is as follows:  
   (i) Successfully completed at least 02 (two) contracts of design, supply, construction, testing & commissioning of composting plant having capacity of processing at least 20,000 metric ton organic waste per annum within last 10 calendar years from the date of Tender Notice.  
   (ii) One of the above 02 (two) contracts must be Executed outside Tenderer’s/subcontractor’s country.  
   (ii) In support of experience as mentioned in Serial no. (i), Tenderer shall have to submit Satisfactory Performance Certificate (SPC) from the end user. The Satisfactory Performance Certificate (SPC) should be in end user’s letterhead pad in English stating at least 02 (two) years of satisfactory operation from the date of commissioning of the said plant and shall contain end-user’s full mailing address, e-mail address, website address, fax number and phone number for the convenience of authentication. |
| ITT 15.1(a) | The required average annual construction turnover shall be greater than USD10 million over the last five years. |
| ITT 15.1(b) | The minimum amount of liquid assets or working capital or credit facilities of the Tenderer shall be USD 5 million. |
| ITT 16.1(a) | A Construction Project Manager, Engineer, and other key staff shall have the following qualifications and experience:  
   “Project Manager, Engineer and other key staff shall have experience of similar/related work as mentioned in General Specification, Section-7” |
| ITT 17.1 | The Tenderer shall own or have proven access to hire or lease of the major construction equipment, in full working order as follows:  
   As required to perform the work as mentioned in Section-7, General Specification. |
| ITT 18.1 | The value of non-judicial stamp for execution of the JVCA agreement shall be Tk 300 (Three Hundred). |
The **minimum qualification** requirements of Leading Partner and other Partner(s) of a JVCA shall be as follows:

<table>
<thead>
<tr>
<th>TDS Clauses References</th>
<th>Requirements by summation</th>
<th>Requirements for Leading Partner</th>
<th>Requirements for other Partner(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITT-14.1(a)</td>
<td>Summation not applicable</td>
<td>as stated in TDS(ITT-14.1(a)]</td>
<td>Same as for Leading Partner</td>
</tr>
<tr>
<td>ITT-14.1(b) 1.</td>
<td>100%</td>
<td>At least one contract [ITT-14.1(b) 1.]</td>
<td>Not mandatory</td>
</tr>
<tr>
<td>ITT-15.1(a)</td>
<td>100%</td>
<td>Minimum 40%</td>
<td>Minimum 25%</td>
</tr>
<tr>
<td>ITT-15.1(b)</td>
<td>100%</td>
<td>Minimum 40%</td>
<td>Minimum 25%</td>
</tr>
<tr>
<td>ITT-16.1(a)</td>
<td>100%</td>
<td>Not mandatory</td>
<td>Not mandatory</td>
</tr>
<tr>
<td>JVCA Stake</td>
<td>100%</td>
<td>51%</td>
<td>Partner having experience [to fulfill experience criteria mentioned in TDS (ITT4.1 (b) 1)] must have 20%</td>
</tr>
</tbody>
</table>

The Nominated Subcontractor(s) named [None] shall execute the following specific components of the proposed Works: None

## D. Tender Preparation

**ITT 24.1 (l)** The Tenderer shall submit with its Tender the following additional documents, otherwise the tender will be rejected;

1. If Tenderer does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization Letter (Form PW3-12) furnished in Section 5: Tender and Contract Forms, to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply the Goods to Bangladesh. Authorization Letter from Dealer will not be accepted. Authorization Letter from Trading house will not be accepted if not supported by Manufacturer's Authorization Letter. Authorization Letter from Manufacturer's Sales office located in other country (not in the country of origin) may be allowed if supported by Manufacturer's letter in this regard. Scanning Paper, E-mail copy, Faxed copy will not be allowed;

2. Satisfactory Performance Certificate (SPC) of the following equipment from the end user depicting that the equipment is operating satisfactorily for at least 2 (two) years:
   - Offered Combined Heat and Power unit (CHP)
   - Offered Feed Hopper with De-compactor
   - Offered Trommel Screen/Rotary Screen.

The Satisfactory Performance Certificate (SPC) should be in end user’s letterhead pad in English stating at least 02 (two) years of satisfactory operation from the date of commissioning of the said equipment and shall contain end-user’s full mailing address, e-mail address, website address, fax number and phone number for the convenience of authentication

3. The Tenderer shall have to fill up the Data & Information in Annexure- 1 according to Annexure 2 & 3 of Tender Document.

4. Certificate from the manufacturer confirming that offered system/Equipment/items/spares are new, unused, in good condition and will fit properly in the existing system.
5. Guarantee /warranty certificate of the offered System/Equipment/items/spares including turnkey work during warranty period [24 (twenty four) months from the date of issuing Provisional Acceptance Certificate] as per GCC 57.


7. Supply records of offered system/ Equipment/items/spares for last 5 years from manufacturer.

| ITT 26.1 | Alternatives will not be permitted. |
| ITT 26.2 | There shall not be alternative times for completion of the Works. |
| ITT 26.4 | Alternative technical solutions for any parts of works will not be permitted. |
| ITT 27.09 | The prices quoted by the Tenderer shall be fixed for the duration of the Contract. Tenderers shall quote a Firm Turnkey Contract Price for the work as described in Section 7 of this Tender document. If the Tenderer deemed necessary any additional equipment/materials/ spares/ works out of the list of tender schedule, tenderer may propose those equipment/materials/ spares/ works. Prices of all items shall be entered in the Prices Schedule under Section 6 in accordance with the amendment (if required). |
| ITT 28.1 | The currency of the Tender shall be: US Dollar/ Freely convertible international currency and Bangladesh Taka. |
| **ITT31.1** | The required Technical Proposal shall include the following additional information:  
| | a) Detailed list of system/Equipment/items/spares& consumables with **detail specification & data schedule** to be supplied under this tender.  
| | b) Name of Manufacturer & Country of origin of offered system/Equipment/items/spares& consumables to be supplied under this tender.  
| | c) Common approach or methodology for carrying out the work including detailed relevant information and work program.  
| | d) Schedule of work in bar chart form as well as in critical path method.  
| | e) List of special tools, equipment and instruments which they intend to bring to Bangladesh on re-exportable basis for completion of the work.  
| | f) Complete CV with detail experience of the key personnel, who will perform the work. (Form PW3-5)  
| | g) Maximum no. of days required to complete the project work from the date of opening of L/C.  
| | h) Original printed catalogue/ technical literature, dimensional drawings for System/Equipment/Materials/items/spares from manufacturer.  
| | i) List of special equipment and tools, which will be handed over to BPDB after completion of work (If any).  
| **ITT 33.1** | The Tender Validity period shall be 150 days.  
| **ITT 35.1** | The amount of the Tender Security shall be **3,00,000.00 (point three million) US Dollar** in the form of an irrevocable and unconditional Bank Guarantee issued by a scheduled bank of Bangladesh or by a foreign bank duly endorsed/authenticated by a scheduled bank of Bangladesh in favour of Secretary, WAPDA Building (1st floor), Motijheel C/A, Dhaka-1000, Bangladesh Power Development Board.  
| **ITT 40.1** | The **original and Three copies of the Technical Proposal and the original and Three copies of Financial Proposal** shall be submitted within the date and time as mentioned in the tender notice.  

## E. Tender Submission

| **ITT 41.1** | This Tender is invited in **Open Tendering Method (Single Stage Two Envelopes)**. The Tenderers shall have to submit the Technical proposal and Financial proposal in two separate envelopes containing one box in accordance with the requirements of the Tender document including addenda (If any).  
| **ITT 41.2(e)** | The inner and outer envelopes shall bear the following additional identification marks (wherever applicable):  
| | 1. Technical Proposal Original  
| | 2. Financial Proposal Original  
| | 3. Copy Technical Proposal  
| | 4. Copy Financial Proposal  
| | 5. Tender Enquiry No. & Date:  
| | 6. Name & Address of the Purchaser:  
| | 7. Name & Address of the Tenderer. |
| ITT 42.1 | For **Tender submission purposes** only, the Procuring Entity’s address is:  
|          | Attention:  
|          | **Secretary**,  
|          | Bangladesh Power Development Board.  
|          | WAPDA Building (1st floor)  
|          | Motijheel Commercial Area,  
|          | DhaKa-1000, Bangladesh.  
|          | The deadline for the submission of Tenders is: As specified in the Tender Notice  
| ITT 42.3 | For **Tender submission purposes** only, the Procuring Entity’s address is:  
|          | **Address (PRIMARY PLACE):**  
|          | **Secretary**,  
|          | Bangladesh Power Development Board.  
|          | WAPDA Building (1st floor)  
|          | Motijheel Commercial Area,  
|          | DhaKa-1000, Bangladesh.  
|          | **Address (SECONDARY PLACES):**  
|          | Submission of Tenders will not be allowed in more than one place.  

**F. Tender Opening and Evaluation**

<table>
<thead>
<tr>
<th>ITT 48.1</th>
<th>The Tender opening shall take place at <em>(always the PRIMARY PLACE)</em>:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Address:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Secretary,</strong></td>
</tr>
<tr>
<td></td>
<td>Bangladesh Power Development Board.</td>
</tr>
<tr>
<td></td>
<td>WAPDA Building(1st floor)</td>
</tr>
<tr>
<td></td>
<td>Motijheel Commercial Area,</td>
</tr>
<tr>
<td></td>
<td>DhaKa-1000, Bangladesh</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Time &amp; Date:</strong> As specified in the Tender Notice (for Technical Proposals)</td>
</tr>
<tr>
<td></td>
<td>The Proposals submitted by the Tenderers shall be opened first in presence of the Tenderers, if any, immediately after the closing time. Evaluation will be done on the basis of tenderers qualification in conformity with Technical Specification in accordance with the amendment (as stated in tender document), authorization from manufacturers of major equipment &amp; end user certificates as specified (as stated in tender document), completion period and plant capacity, as well as adherence to the technical requirement in a broader sense.</td>
</tr>
<tr>
<td></td>
<td>The &quot;Financial Proposals&quot; of those technically responsive Tenderers whose offers qualify in the &quot;Technical Proposal&quot; will be opened in presence of the Tenderers, if any, on a date to be notified later. If any &quot;Technical Proposal&quot; after having been examined is found to be defective or otherwise not in conformity with Technical Specification and thus found unacceptable, the &quot;Financial Proposal&quot; submitted by the same Tenderer shall not be opened and shall be returned unopened, if requested by the Tenderer, at its own cost. In any case, such &quot;Financial Proposal&quot; shall be disregarded.</td>
</tr>
</tbody>
</table>
### Evaluation of the Tenders shall be carried out based on the following:

**1.0 Exchange Rate**

For Comparison of Tenders, BPDB shall convert all currencies excepting Bangladesh Currency quoted by the Tenderers into Bangladesh Taka. Such conversions shall be made on the basis of the Sonali Bank rate on the date of Tender opening and applicable to similar transactions.

**2.0 Method of Tender Evaluation**

The Technical conformance shall be evaluated considering all the aspects (in connection with specified work) offered by each Tenderer as well as the data and information submitted and on proper judgment of the capability of individual Tenderer. The technical qualifications and overall capabilities of the Tenderers for carrying out the work as specified as well as the specifications of the system, equipment, spares and consumables offered and fulfillment of the key dates shall be the essence for selection of technically responsive Tenderers.

The evaluation will take into account the initial costs of the Tenders, which shall be determined by bringing the scope of work of all the Tenders to a common basis for complete fulfillment of the work. BPDB reserves the right to judge the reasonableness of the cost components quoted by the Tenderers. For the purpose of evaluation all costs shall be based on current prices as of the date of the tender closing.

The Tender quoting completion period more than 540 days shall not be accepted. The Tender of which total evaluated cost is the lowest shall be adjudged the lowest Tender.

### G. Contract Award

**ITT 64.1** The amount of Performance Security shall be ten (10) percent of the Contract Price.

The Performance Security shall be in the form of an irrevocable and unconditional Bank Guarantee issued by a scheduled bank of Bangladesh or by a foreign bank duly endorsed/authenticated by a scheduled bank of Bangladesh.

The Performance Security shall remain valid until completion of Warranty Period and will be released upon submission of new performance security equal to 10% of the O&M price including supply of spares of last 2 (two) years, which will be valid up to completion of O & M (including supply of spares) period.

**ITT 68.1** The Adjudicator proposed by the Procuring Entity is [Will be selected as and when necessary. Adjudicator Appointing Authority: President of the Institution of Engineers, Bangladesh.]. The hourly fee shall be Tk [Will be informed later] and the reimbursable expenses shall be limited to [will be informed later].
Section 3. General Conditions of Contract

A. General

1. Definitions

1.1 In the Conditions of Contract, which include Particular Conditions and these General Conditions, the following words and expressions shall have the meaning hereby assigned to them. Boldface type is used to identify the defined terms:


(b) Adjudicator is the expert appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in GCC Sub Clause 94.2.

(c) Bill of Quantities (BOQ) means the priced and completed Bill of Quantities forming part of the Contract defined in GCC Clause 60.

(d) Compensation Events are those defined in GCC Clause 69.

(e) Competent Authority means the authority that gives decision on specific issues as per delegation of administrative and/or financial powers.

(f) Completion Certificate means the Certificate issued by the Project Manager as evidence that the Contractor has executed the Works and Physical services in all respects as per design, drawing, specifications and Conditions of Contract.

(g) Completion Date is the actual date of completion of the Works and Physical services certified by the Project Manager, in accordance with GCC Clause 80.

(h) Contract Agreement means the Agreement entered into between the Procuring Entity and the Contractor, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein to execute, complete, and maintain the Works.

(i) Contract Documents means the documents listed in GCC Clause 6, including any amendments thereto.

(j) Contractor means the Person under contract with the Procuring Entity for the execution of Works under the Rules and the Act as stated in the PCC.

(k) Contract Price means the price payable to the Contractor as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions there from, for the execution, completion and maintenance of the Works in accordance with the provisions of the Contract.
(l) **Contractor's Tender** is the completed Tender Document including the priced Bill of Quantities and the Schedules submitted by the Contractor to the Procuring Entity.

(m) **Cost** means all expenditures reasonably incurred or to be incurred by the Contractor, whether on or off the Site, including overhead, profit, taxes, duties, fees, and such other similar levies.

(n) **Day** means calendar day unless otherwise specified as working days.

(o) **Dayworks** means work carried out following the instructions of the Procuring Entity or the authorised Project Manager and is paid for on the basis of time spent by the Contractor's workers and equipment at the rates specified in the Schedules, in addition to payments for associated Materials and Plant.

(p) **Defect** is any part of the Works not completed in accordance with the Contract.

(q) **Defects Correction Certificate** is the certificate issued by the Project Manager upon correction of defects by the Contractor.

(r) **Drawings** include calculations and other information provided in Section 9 or as approved by the Project Manager for the execution and completion of the Contract.

(s) **Goods** mean the Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

(t) **Equipment** is the Contractor's apparatus, machinery, vehicles and other things required for the execution and completion of the Works and remediing any defects excluding Temporary Works and the Procuring Entity's Equipment (if any ), Plant, Materials and any other things to form or forming part of the Permanent Works.

(u) **Force Majeure** means an event or situation beyond the control of the Contractor that is not foreseeable, is unavoidable, and its origins not due to negligence or lack of care on the part of the Contractor; such events may include, but not be limited to, acts of the Government in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes or more as included in GCC Clause 85.;

(v) **GCC** means the General Conditions of Contract.

(w) **Government** means the Government of the People’s Republic of Bangladesh.

(x) **"Head of the Procuring Entity"** means the Secretary of a Ministry or a Division, the Head of a Government
Department or Directorate; or the Chief Executive, by whatever designation called, of a local Government agency, an autonomous or semi-autonomous body or a corporation, or a corporate body established under the Companies Act;

(y) **Intended Completion Date** is the date calculated from the Commencement Date as specified in the **PCC**, on which it is intended that the Contractor shall complete the Works and Physical services as specified in the Contract and may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

(z) **Materials** means things of all kinds other than Plant intended to form or forming part of the Permanent Works, including the supply-only materials, if any, to be supplied by the Contractor under the Contract.

(aa) **Month** means calendar month.

(bb) **Original Contract Price** is the Contract Price stated in the Procuring Entity’s Notification of Award (Form PW3-7) and further clearly determined in the **PCC**.

(cc) **Permanent works** means the permanent works to be executed by the Contractor under the Contract.

(dd) **PCC** means the Particular Conditions of Contract.

(ee) **Plant** means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Procuring Entity and relating to the construction of the Works and Physical services.

(ff) **Procuring Entity** means a Procuring Entity having administrative and financial powers to undertake procurement of Works and Physical services using public funds and is as named in the **PCC** who employs the Contractor to carry out the Works.

(gg) **Project Manager** is the person named in the **PCC** or any other competent person appointed by the Procuring Entity and notified to the Contractor who is responsible for supervising the execution and completion of the Works and Physical services and administering the Contract.

(hh) **Provisional Sums means** amounts of money specified by the Procuring Entity in the Bill of Quantities which shall be used, at its discretion, for payments to Nominated Subcontractor(s) and for meeting other essential expenditures under the Contract pursuant to GCC Sub Clause 77.

(ii) **Retention Money** means the accumulated retention moneys which the Procuring Entity retains under GCC Clause 72.
(jj) **Schedules** means the document(s) entitled schedules, completed by the Contractor and submitted with the Tender Submission Letter, as included in the Contract. Such document may include the data, lists and schedules of rates and/or prices.

(kk) **Site** means the places where the Permanent Works are to be executed including storage and working areas and to which Plant and Materials are to be delivered, and any other places as may be specified in the PCC as forming part of the Site.

(ll) **Site Investigation Reports** are those that were included in the Tender Document and are factual and interpretative reports about the surface and subsurface conditions at the Site.

(mm) **Specification** means the Specification of the Works included in the Contract and any modifications or additions to the specifications made or approved by the Project Manager in accordance with the Contract.

(nn) **Start Date** is the date defined in the PCC and it is the last date when the Contractor shall commence execution of the Works under the Contract.

(oo) **Subcontractor** means a person or corporate body, who has a contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

(pp) **Temporary Works** means all temporary works of every kind other than Contractor’s Equipment required on the Site for the execution and completion of the Permanent Works and remedying of any defects.

(qq) **Variation** means any change to the Works directly procured from the original Contractor to cover increases or decreases in quantities, including the introduction of new work items that are either due to change of plans, design or alignment to suit actual field conditions, within the general scope and physical boundaries of the contract.

(rr) **Works** means all works associated with the construction, reconstruction, site preparation, demolition, repair, maintenance or renovation of railways, roads, highways, or a building, an infrastructure or structure or an installation or any construction work relating to excavation, installation of equipment and materials, decoration, as well as physical services ancillary to works as detailed in the PCC, if the value of those services does not exceed that of the Works themselves.

(ss) **Writing** means communication written by hand or machine duly signed and includes properly authenticated messages by facsimile or electronic mail.
2. **Interpretation**

2.1 In interpreting the GCC, singular also means plural, male also means female or neuter, and the other way around. Headings in the GCC shall not be deemed part thereof or be taken into consideration in the interpretation or construance of the Contract. Words have their normal meaning under the language of the Contract unless specifically defined.

2.2 **Entire Agreement**

The Contract constitutes the entire agreement between the Procuring Entity and the Contractor and supersedes all communications, negotiations and agreements (whether written or verbal) of parties with respect thereto made prior to the date of Contract Agreement; except those stated under GCC Sub Clause 6.1(j).

2.3 **Non waiver**

(a) Subject to GCC Sub Clause 2.3(b), no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.

(b) Any waiver of a party’s rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

2.4 **Severability**

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

2.5 **Sectional completion**

If sectional completion is specified in the PCC, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

3. **Communications and Notices**

3.1 Communications between Parties such as notice, request or consent required or permitted to be given or made by one party to the other pursuant to the Contract shall be in writing to the addresses specified in the PCC.

3.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.
3.3 A Party may change its address for notice hereunder by giving the other Party notice of such change to the address.

4. **Governing Law**

4.1 The Contract shall be governed by and interpreted in accordance with the laws of the People’s Republic of Bangladesh.

5. **Governing Language**

5.1 The Contract shall be written in English. All correspondences and documents relating to the Contract may be written in English or Bangla. Supporting documents and printed literature that are part of the Contract may be in another language, provided they are accompanied by an accurate translation of the relevant passages in English, in which case, for purposes of interpretation of the Contract, such translation shall govern.

5.2 The Contractor shall bear all costs of translation to the governing language and all risks of the accuracy of such translation.

6. **Documents Forming the Contract and Priority of Documents**

6.1 The following documents forming the Contract shall be interpreted in the following order of priority:

(a) the signed Contract Agreement (Form PW3-8);
(b) the Notification of Award (PW3-7);
(c) the completed Tender and the appendix to the Tender;
(d) the Particular Conditions of Contract;
(e) the General Conditions of Contract;
(f) the Technical Specifications;
(g) the General Specifications;
(h) the Drawings;
(i) the priced Bill of Quantities and the Schedules; and
(j) any other document listed in the PCC forming part of the Contract.

7. **Scope of Works**

7.1 The Works to be executed, completed and maintained shall be as specified in the Bill of Quantities, the General and Particular Specifications and Drawings.

7.2 Unless otherwise stipulated in the Contract, the Works shall include all such items not specifically mentioned in the Contract but that can be reasonably inferred from the Contract as being required for completion of the Works as if such items were expressly mentioned in the Contract.

8. **Assignment**

8.1 Neither the Contractor nor the Procuring Entity shall assign, in whole or in part, its obligations under the Contract.

9. **Eligibility**

9.1 The Contractor and its Subcontractor(s) shall have the nationality of a country other than that specified in the PCC.
9.2 All materials, equipment, plant, and supplies used by the Contractor in both permanent and temporary works and services supplied under the Contract shall have their origin in the countries except any specified in the PCC.

10. Gratuities / Agency fees

10.1 No fees, gratuities, rebates, gifts, commissions or other payments, other than those shown in the tender or in the Contract, have been given or received in connection with the procurement process or in the Contract execution.

11. Confidential Details

11.1 The Contractor's and the Procuring Entity's personnel shall disclose all such confidential and other information as may be reasonably required in order to verify the Contractor's compliance with the Contract and allow its proper implementation.

11.2 Each of them shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

12. JVCA

12.1 If the Contractor is a JVCA,

(a) each partner of the JVCA shall be jointly and severally liable for all liabilities and ethical or legal obligations to the Procuring Entity for the fulfilment of the promises of the Contract;

(b) the JVCA partners shall nominate a representative who shall have the authority to conduct all business including the receipt of payments for and on behalf of all partners of the JVCA;

(c) the JVCA shall notify the Procuring Entity of its composition and legal status which shall not be altered without the prior approval of the Procuring Entity.

(d) alteration of partners shall only be allowed if any of the partners is found to be incompetent or has any serious difficulties which may impact the overall implementation of the works.

13. Possession of the Site

13.1 The Procuring Entity shall give possession of the Site or part(s) of the Site, to the Contractor on the date(s) stated in the PCC. If possession of a part of the Site is not given by the date stated in the PCC, the Procuring Entity will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event as stated under GCC Sub Clause 69.1(a).

14. Access to

14.1 The Contractor shall allow the Project Manager and any person
the Site

15. Procuring Entity’s Responsibilities

15.1 The Procuring Entity shall pay the Contractor, in consideration of the satisfactory progress of execution and completion of the Works and Physical services, and the remedying of defects therein, the Contract price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract Agreement.

15.2 The Procuring Entity shall make its best effort to guide and assist the Contractor in obtaining, if required, any permit, licence, and approvals from local public authorities for the purpose of execution of the Works and Physical services under the Contract.

16. Approval of the Contractor’s Temporary Works

16.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, who is to approve them, if they comply with the Specifications and Drawings.

16.2 The Contractor shall be responsible for design of Temporary Works.

16.3 The Project Manager’s approval shall not alter the Contractor’s responsibility for design of the Temporary Works.

16.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

17. Contractor’s Responsibilities

17.1 The Contractor shall execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract Agreement.

18. Taxes and Duties

18.1 The Contractor shall be entirely responsible for all taxes, duties, fees, and other such levies imposed inside and outside Bangladesh.

19. Contractor’s Personnel

19.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the PCC, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager.

19.2 The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are equal to or higher than those of the personnel named in the Schedule.

19.3 If the Project Manager asks the Contractor to remove a particular person who is a member of the Contractor’s staff or work force from the Site, he or she shall state the reasons, and the Contractor shall ensure that the person leaves the Site within three (3) days and has no further connection with the work in the Contract.

20. Subcontract

20.1 Subcontracting the whole of the Works by the Contractor shall
not be permissible. The Contractor shall be responsible for the acts or defaults of any Subcontractor, his or her agents or employees, as if they were the acts or defaults of the Contractor.

20.2 The prior consent, in writing, of the Project Manager shall however be obtained for other proposed Subcontractor(s).

20.3 Subcontractors shall comply with the provisions of GCC Clause 39.

21. Nominated Subcontractor

21.1 Nominated Subcontractor named in the Contract shall be entitled to execute the specific components of the Works stated in the PCC.

21.2 The Contractor shall not be under obligations to employ a Nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Project manager as soon as practicable, with supporting particulars while there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength, or does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor.

21.3 Subcontracting shall in no event relieve the Contractor from any of its obligations, duties, responsibilities, or liability under the Contract and all Subcontractors shall comply with the provisions of GCC Clause 39.

22. Other Contractors

22.1 The Contractor shall cooperate and share the Site with other Contractors, public authorities, utilities, the Project Manager and the Procuring Entity between the dates given in the Schedule of other Contractors. The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Entity may modify the Schedule of other Contractors, and shall notify the Contractor of any such modification.

23. Project Manager’s Decisions

23.1 Except where otherwise specifically stated in the PCC, the Project Manager will decide Contractual matters between the Procuring Entity and the Contractor in its role as representative of the Procuring Entity.

24. Delegation

24.1 The Project Manager may delegate any of his duties and responsibilities to his representative except to the Adjudicator, after notifying the Contractor, and may cancel any delegation, without retroactivity, after notifying the Contractor.

24.2 Any communications to the Contractor in accordance with such delegation shall have the same effect as if it was given by the Project Manager.

25. Instructions

25.1 The Contractor shall carry out all instructions of the Project Manager that comply with the applicable law.
26. Queries about the Contract Conditions

26.1 The Project Manager, on behalf of the Procuring Entity, will clarify queries on the Conditions of Contract.

27. Safety, Security and Protection of the Environment

27.1 The Contractor shall throughout the execution and completion of the Works and the remedying of any defects therein:

(a) take all reasonable steps to safeguard the health and safety of all workers working on the Site and other persons entitled to be on it, and to keep the Site in an orderly state;

(b) provide and maintain at the Contractor’s own cost all lights, guards, fencing, warning signs and watching for the protection of the Works or for the safety on-site; and

(c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of the Contractors methods of operation.

28. Working Hours

28.1 The Contractor shall not perform any work on the Site on the weekly holidays, or during the night or outside the normal working hours, or on any religious or public holiday, without the prior written approval of the Project Manager.

29. Welfare of Labourers

29.1 The Contractor shall comply with all the relevant labour Laws applicable to the Contractor’s personnel relating to their employment, health, safety, welfare, immigration and shall allow them all their legal rights.

29.2 The Contractor, in particular, shall provide proper accommodation to his or her labourers and arrange proper water supply, conservancy and sanitation arrangements at the site for all necessary hygienic requirements and for the prevention of epidemics in accordance with relevant regulations, rules and orders of the government.

29.3 The Contractor, further in particular, shall pay reasonable wages to his or her labourers, and pay them in time. In the event of delay in payment the Procuring Entity may effect payments to the labourers and recover the cost from the Contractor.

30. Child Labour

30.1 The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development in compliance with the applicable labor laws and other relevant treaties ratified by the government.
31. Discoveries 31.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Procuring Entity. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager’s instructions for dealing with them.

32. Procuring Entity’s and Contractor’s Risks 32.1 The Procuring Entity carries the risks that the Contract states are Procuring Entity’s risks and the Contractor carries the risks that the Contract states are Contractor’s risks.

33. Procuring Entity’s Risks 33.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Procuring Entity’s risks:

(a) the risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to

i. use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or

ii. negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or Contracted to him except the Contractor.

(b) the risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity’s design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

33.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is Procuring Entity’s risk, except loss or damage due to:

(a) a Defect which existed on the Completion Date;

(b) an event occurring before the Completion Date, which was not itself Procuring Entity’s risk; or

(c) the activities of the Contractor on the Site after the Completion Date.

34. Contractor’s Risks 34.1 From the Start Date until the Defects Correction Certificate has been issued the risks of personal injury, death, and loss of or damage to property including without limitation, the Works, Plant, Materials, and Equipment, which are not Procuring Entity’s risks are Contractor’s risks.

35. Copyright 35.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Procuring Entity by the Contractor herein shall remain vested
in the Contractor, or, if they are furnished to the Procuring Entity directly or through the Contractor by any third party, including Suppliers of materials, the copyright in such materials shall remain vested in such third party.

35.2 The Contractor shall not, except for the purposes of performing the obligations under the Contract, without the written permission of the Procuring Entity disclose or make use of any specification, plan, design and drawing, pattern, sample or information furnished by or on behalf of the Procuring Entity.

36. Limitation of Liability

36.1 Except in cases of criminal negligence or wilful misconduct:

(a) the Contractor shall not be liable to the Procuring Entity, whether in Contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Procuring Entity; and

(b) the aggregate liability of the Contractor to the Procuring Entity, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective Works, or to any obligation of the Contractor to indemnify the Procuring Entity with respect to patent infringement.

37. Insurance

37.1 The Contractor shall provide, in the joint names of the Procuring Entity and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles specified in the PCC for the following events which are due to the Contractor’s risks:

(a) loss of or damage to the Works, Plant, and Materials;
(b) loss of or damage to Equipment;
(c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
(d) personal injury or death.

37.2 The Contractor shall deliver policies and certificates of insurance to the Project Manager, for the Project Manager’s approval, before the Start Date. All such insurances shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

37.3 If the Contractor does not provide any of the policies and certificates required, the Procuring Entity may effect the insurance which the Contractor should have provided and recover the premiums the Procuring Entity has paid from payments otherwise due to the Contractor or, if no payment
37.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.

37.5 Both parties shall comply with conditions of the insurance policies.

38. Management and Progress Meetings

38.1 Either the Project Manager or the Contractor may require the other to attend a management and progress meeting. The business of such meeting shall be to review the progress and plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

38.2 The Project Manager shall record the business of the meetings and provide copies of the record to those attending the meeting and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management and progress meeting or after the meeting, and stated in writing to all concerned.

39. Corrupt, Fraudulent, Collusive or Coercive Practices

39.1 The Government requires that Procuring Entity, as well as the Contractor shall observe the highest standard of ethics during the implementation of procurement proceedings and the execution of the Contract under public fund.

39.2 For the purposes of GCC Sub Clause 39.4, the terms set forth below as follows:

(a) "corrupt practice" means offering, giving or promising to give, receiving, or soliciting either directly or indirectly, to any officer or employee of a Procuring Entity or other public or private authority or individual, a gratuity in any form; employment or any other thing or service of value as an inducement with respect to an act or decision or method followed by a Procuring Entity in connection with a Procurement proceeding or Contract execution;

(b) "fraudulent practice" means the misrepresentation or omission of facts in order to influence a decision to be taken in a Procurement proceeding or Contract execution;
(c) “collusive practice” means a scheme or arrangement between two (2) or more Persons, with or without the knowledge of the Procuring Entity, that is designed to arbitrarily reduce the number of Tenders submitted or fix Tender prices at artificial, non-competitive levels, thereby denying a Procuring Entity the benefits of competitive price arising from genuine and open competition; or

(d)”coercive practice” means harming or threatening to harm, directly or indirectly, Persons or their property to influence a decision to be taken in the Procurement proceeding or the execution of the Contract, and this will include creating obstructions in the normal submission process used for Tenders.

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

39.3 Should any corrupt, fraudulent, collusive, coercive or obstructive practice of any kind come to the knowledge of the Procuring Entity, it will, in the first place, allow the Contractor to provide an explanation and shall, take actions only when a satisfactory explanation is not received. Such exclusion and the reasons thereof, shall be recorded in the record of the procurement proceedings and promptly communicated to the Contractor. Any communications between the Contractor and the Procuring Entity related to matters of alleged corrupt, fraudulent, collusive, coercive or obstructive practices shall be in writing.

39.4 If corrupt, fraudulent, collusive, coercive or obstructive practices of any kind determined by the Procuring Entity against the Contractor alleged to have carried out such practices, the Procuring Entity will:

(a) exclude the Contractor from further participation in the particular Procurement proceeding; or

(b) declare, at its discretion, the Contractor to be ineligible to participate in further Procurement proceedings, either indefinitely or for a specific period of time.
39.5 The Contractor shall be aware of the provisions on corruption, fraudulence, collusion and coercion in Section 64 of the Public Procurement Act, 2006 and Rule 127 of the Public Procurement Rules, 2008.

39.6 The Contractor shall permit the Procuring Entity and/or the Development Partner to inspect the Contractor’s accounts and records and other documents relating to the submission of tender and contract performance, and to have them audited by auditors appointed by the Procuring Entity and/or the Development Partner, if so required.

B. Time Control

40. Commencement of Works

40.1 Except otherwise specified in the PCC, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Project Manager’s instruction recording the agreement of both Parties on such fulfilment and instructing to commence the Works is received by the Contractor:

(a) signing of the Contract Agreement by both parties upon approval of the by relevant authorities;

(b) possession of the Site given to the Contractor as required for the commencement of the Works; and

(c) receipt by the Contractor of the Advance Payment under GCC Clause 75 provided that the corresponding Bank Guarantee has been delivered by the Contractor, if any.

40.2 The Contractor shall commence the execution of the Works as soon as is reasonably practicable by the Start Date as specified in the GCC Sub Clause 1.1(nn) after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.

41. Completion of Works

41.1 The Contractor shall carry out the Works in accordance with the Programme of Works submitted by the Contractor and as updated with the approval of the Project Manager as stated under GCC Clause 42 to complete them in all respects by the Intended Completion Date.

42. Programme of Works

42.1 Within the time stated in the PCC, the Contractor shall submit to the Project Manager for approval a Programme of Works showing the general methods, arrangements, order, and timing for all the activities in the Works. The programme may be in the form of an Implementation Schedule prepared in any software or other form acceptable to the Project Manager.

42.2 The Contractor shall submit to the Project Manager for approval of an updated Programme at intervals no longer than the period stated in the PCC. An update of the Programme shall be a Programme showing the actual progress achieved on each activity and the effect of the
progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

42.3 If the Contractor does not submit an updated Programme of Works at the intervals as stated under GCC Sub Clause 42.2, the Project Manager may withhold an amount as stated in the PCC from the next payment certificate and continue to withhold this amount until the next due payment after the date on which the overdue Programme of Works has been submitted.

42.4 The Project Manager’s approval of the Programme of Works shall not alter the Contractor’s obligations. The Contractor may revise the Programme and submit it to the Project Manager again at any time for approval. A revised Programme shall show the effect of Variations and Compensation Events.

43. Pro Rata Progress
43.1 The Contractor shall maintain Pro Rata progress of the Works. Progress to be achieved shall be pursuant to GCC Clause 42 and shall be determined in terms of the value of the works done.

44. Early Warning
44.1 If at any time during performance of the Contract, the Contractor or its Subcontractors should encounter events, circumstances, conditions that may adversely affect the quality of the work, increase the original Contract Price or delay the execution of the Works, the Contractor shall promptly notify the Project Manager in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Contractor’s notice, the Project Manager shall evaluate the situation, and the Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced.

44.2 The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the original Contract price and Completion Date. The Contractor shall provide the estimate and the Project Manager shall further proceed as soon as reasonably possible.

45. Extension of Intended Completion Date
45.1 The Contractor shall be entitled to an extension of the Intended Completion Date, if and to the extent that completion of the Works or any part thereof is or will be delayed by Compensation Events or a Variation or Extra Work Order.

45.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within twenty-one (21) days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has
failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the extension of Intended Completion Date.

45.3 Except in case of Force Majeure, as provided under GCC Clause 85, a delay by the Contractor in the performance of its Completion obligations shall render the Contractor liable to the imposition of Liquidated Damages pursuant to GCC Clause 73, unless an extension of Intended Completion Date is agreed upon, pursuant to GCC Clause 45.

46. Delays Caused by Authorities

46.1 If the following conditions apply, namely:
(a) the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities,
(b) these public authorities delay or disrupt the Contractor’s work, and
(c) the delay or disruption was unforeseeable;
then this delay or disruption will be considered as a cause of delay under GCC Sub Clause 45.1.

46.2 The Project Manager shall notify the Contractor accordingly keeping the Procuring Entity posted.

47. Acceleration

47.1 When the Procuring Entity wants the Contractor to finish the Works before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be advanced accordingly and confirmed by both the Procuring Entity and the Contractor.

47.2 If the Procuring Entity accepts the Contractor’s priced proposals for acceleration, they will be incorporated in the Contract Price and treated as a Variation under GCC Clause 62.

48. Delays Ordered by the Project Manager

48.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

49. Suspension of Work

49.1 The Project Manager may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

50. Consequences of Suspension

50.1 If the Contractor suffers delay and/or incurs Cost from complying with the Project Manager’s instructions under GCC Clause 49 and/or from resuming the work, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC Clause 93to:
(a) an extension of time for any such delay, if Completion is or will be delayed and
(b) payment of any such cost, which shall be included in the Contract Price.

50.2 After receiving this notice, the Project Manager shall proceed to agree or determine these matters.

50.3 The Contractor shall not be entitled to any extension of time for, or to any payment of the cost incurred in, making good the consequences of the Contractor’s faulty design, workmanship or materials, or of the Contractor’s failure to protect, store or secure in accordance with GCC Clause 49.

C. Quality Control

51. Execution of Works

51.1 The Contractor shall construct, install and carry out the Works and Physical services in accordance with the Specifications and Drawings as scheduled in GCC Clause 6.

52. Examination of Works before covering up

52.1 All works under the Contract shall at all times be open to examination, inspection, measurements, testing and supervision of the Project Manager, and the Contractor shall ensure presence of its representatives at such actions provided proper advance notice is given by the Project Manager.

52.2 No part of the Works shall be covered up or put out of sight without the approval of the Project Manager. The Contractor shall give notice in writing to the Project Manager whenever any such part of the Works is ready for examination and the Project Manager shall attend to such examination without unreasonable delay.

53. Identifying Defects

53.1 The Project Manager shall check the works executed by the Contractor and notify the Contractor of any Defects found. Such checking shall not relieve the Contractor from his or her obligations. The Project Manager may also instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.

54. Testing

54.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.

55. Rejection of Works

55.1 If, as a result of an examination, inspection, measurement or testing, of Works it is found to be defective or otherwise not in accordance with the Contract, the Project Manager may reject the Works by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected Works
subsequently complies with the Contract.

56. Remedial Work

56.1 Notwithstanding any test or certification, the Project Manager may instruct the Contractor to:
   (a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
   (b) remove and re-execute any other work which is not in accordance with the Contract, and
   (c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.

56.2 The Contractor shall comply with the instruction issued under GCC Sub Clause 56.1 within a reasonable time, which shall be specified in the instruction, or immediately if urgency is specified under GCC Sub Clause 56.1(c).

56.3 If the Contractor fails to comply with the instruction issued under GCC Sub Clause 56.2, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall be liable to pay all such costs arising from this failure.

57. Correction of Defects

57.1 The Project Manager shall give notice to the Contractor, with a copy to the Procuring Entity and others concerned, of any Defects before the end of the Defects Liability Period, which begins at Completion Date, and is defined in the PCC. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

57.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager’s notice.

58. Uncorrected Defects

58.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager’s notice, the Project Manager shall assess the cost of having the Defect corrected by it, and the Contractor shall remain liable to pay the expenditures incurred on account of correction of such Defect.

D. Cost Control

59. Contract Price

59.1 The Contract Price shall be as specified in the Contract Agreement subject to any additions and adjustments thereto, or deductions there from, as may be made pursuant to Contract

60. Bill of Quantities

60.1 The Bill of Quantities shall contain priced items for the construction, installation, testing, and commissioning work to be done by the Contractor.

60.2 The Bill of Quantities is used to calculate the Contract
61. Changes in the Quantities and Unit Rate or Price

61.1 If the final quantity of the work done for any particular item increases from the quantity in the Bill of Quantities by more than twenty-five percent (25%), provided the change in case exceeds one percent (1%) of the original Contract Price, the Project Manager shall adjust the rate to allow for the change.

61.2 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.

62. Variations

62.1 All Variations and Extra Work Orders under the Contract shall be included in the updated Programme of Works produced by the Contractor.

63. Costing of Variations or Extra Orders

63.1 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

63.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work not above the limit stated in GCC Sub-Clause 61.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.

63.3 If the Contractor’s quotation is found to be unreasonable, the Project Manager may order the Variation and make a change to the Contract price, which shall be based on the Project Manager’s own forecast of the effects of the Variation on the Contractor’s costs.

63.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event under GCC Sub Clause 69.

63.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning under GCC Sub Clause 44.1.

64. Cash Flow Forecasts

64.1 When the Programme of Works is updated under GCC Sub Clause 42.2, the Contractor shall provide the Project
Manager with an updated cash flow forecast.

65. Payment Certificates

65.1 The basis for payment certificates shall be Bill of Quantities used to determine the Contract price.

65.2 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the works executed less the cumulative amount certified previously.

65.3 The Project Manager shall check the Contractor’s monthly statement and certify the amount to be paid to the Contractor.

65.4 The value of work executed shall be determined by the Project Manager.

65.5 The value of work executed shall include the valuation of Variations or Extra Work Orders, Certified Dayworks and Compensation Events.

65.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

66. Payments to the Contractor

66.1 Payments shall be adjusted for deductions for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Project Manager within twenty eight (28) days of the date of each certificate after due adjustments for deductions for advance payments, retention and any other additions or deductions which may have become due under the Contract or otherwise, including those under GCC Clause 93.

66.2 Items of works quantified in the Bill of Quantities for which no rates or prices have been quoted shall be deemed covered by the amounts at rates and prices of other items in the Contract.

66.3 Payments due to the Contractor in each certificate shall be made into the Bank Account in any scheduled Bank of Bangladesh of the title of the Contract specified in the PCC, nominated by the Contractor in the currency specified in the Contract.

67. Delayed Payment

67.1 If the Procuring Entity makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.

67.2 If an amount certified is increased in a subsequent certificate as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the
68. Payments to Nominated Subcontractor(s)  

68.1 The Contractor shall pay to the Nominated Subcontractor(s) the amounts shown on the Nominated Subcontractor’s invoices approved by the Contractor which the Project Manager certifies to be due in accordance with the subcontract included under the Contract.

69. Compensation Events  

69.1 The following shall be Compensation Events:

(a) The Procuring Entity does not give access to or possession of the Site or part of the Site by the Site Possession Date stated in the GCC Sub Clause 13.1;

(b) The Procuring Entity modifies the Schedule of other Contractors in a way that affects the works of the Contractor under the Contract;

(c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time;

(d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects;

(e) The Project Manager unreasonably does not approve a subcontract to be let, if applicable;

(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Notification of Award from the information issued to Tenderers (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site;

(g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Procuring Entity, or additional work required for safety or other reasons;

(h) Other Contractors, public authorities, utilities, or the Procuring Entity do not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor;

(i) The advance payment is delayed;

(j) The effects on the Contractor of any of the Procuring Entity’s Risks;

(k) The Project Manager unreasonably delays issuing a Completion Certificate;

(l) A situation of Force Majeure has occurred, as defined in GCC Clause 85; and

(m) Other Compensation Events described in the Contract or determined by the Project Manager in the PCC shall apply.
69.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract price shall be increased and whether and by how much the Intended Completion Date shall be extended, only on justifiably acceptable grounds duly recorded.

69.3 As soon as the Contractor has provided information demonstrating the effect of each Compensation Event upon the Contractor’s forecast cost, the Project Manager shall assess it, and the Contract price shall be adjusted accordingly. If the Contractor’s forecast is deemed unreasonable, the Project Manager shall adjust the Contract price based on the Project Manager’s own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

69.4 The Contractor shall not be entitled to compensation to the extent that the Procuring Entity’s interests are adversely affected by the Contractor not having given early warning or not having cooperated with the Project Manager.

70. Adjustments for Changes in Legislation

70.1 Unless otherwise specified in the Contract, if between the date twenty-eight (28) days before the submission of Tenders for the Contract and the date of the last Completion Certificate, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Bangladesh (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Completion Date and/or the Contract price, then such Completion Date and/or Contract price shall be correspondingly increased or decreased, to the extent that the Contractor has thereby been affected in the performance of any of its obligations under the Contract.

70.2 The Project Manager shall adjust the Contract Price on the basis of the change in the amount of taxes, duties, and other levies payable by the Contractor, provided such changes have not already been accounted for in the price adjustment as defined in GCC Clause 69 and/or reflected in the Contract price.

71. Price Adjustment

71.1 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the PCC. If so provided, the amounts as certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amount. The formula indicated below applies:

\[ P = A + B (lm/lo) \]
where:

\( P \) is the adjustment factor

\( A \) and \( B \) are Coefficients specified in the PCC, representing the nonadjustable and adjustable portions, respectively, of the Contract; and

\( I_m \) is the Index during the month the work has been executed and \( I_0 \) is the Index prevailing twenty eight (28) days prior to the deadline for submission of Tender.

The Indexes to be used is as published by the Bangladesh Bureau of Statistics (BBS) on a monthly basis. In case not available, then other countries or authorities of the sources mentioned in Appendix to the Tender may be used.

### 72. Retention Money

72.1 The Procuring Entity may retain from each progressive payment due to the Contractor at the percentage specified in the PCC until completion of the whole of the Works under the Contract.

72.2 On completion of the whole of the Works, the first half the total amount retained under GCC Sub Clause 72.1 shall be repaid to the Contractor and the remaining second half after the Defects Liability Period has passed and the Project Manager has certified in the form of Defects Corrections Certificate.

72.3 On completion of the whole of the Works, the Contractor may substitute an unconditional Bank Guarantee in the format as specified (Form PW3-11) acceptable to the Procuring Entity for the second half of the retention money as stated under GCC Sub Clause 72.2.

### 73. Liquidated Damages

73.1 The Contractor shall pay liquidated damages\(^{16}\) to the Procuring Entity at the rate per day stated in the PCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the PCC. The Procuring Entity may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.

73.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.

### 74. Bonus

74.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day if stated in the PCC for each day (less any days for which the Contractor is paid for acceleration) that the Completion of the whole of the Works is earlier than the Intended Completion Date. The Project Manager shall require certifying that the Works are complete.

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\(^{16}\) Usually liquidated damages are set between 0.05 percent and 0.10 percent per day, and the total amount is not to exceed between 5 percent and 10 percent of the Contract Price.
75. Advance Payment

75.1 If so specified in the PCC, the Procuring Entity shall make advance payment to the Contractor of the amounts and by the dates stated in the PCC against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Procuring Entity in an amount equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.

75.2 The Contractor shall use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used for such specific purposes by supplying copies of invoices or other documents to the Project Manager.

75.3 The advance payment shall be repaid by deducting at proportionate rate from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

76. Performance Security

76.1 The Procuring Entity shall notify the Contractor of any claim made against the Bank issuing the Performance Security.

76.2 The Procuring Entity may claim against the security if any of the following events occurs for fourteen (14) days or more.

(a) The Contractor is in breach of the Contract and the Procuring Entity has duly notified him or her; and

(b) The Contractor has not paid an amount due to the Procuring Entity and the Procuring Entity has duly notified him or her.

76.3 In the event the Contractor is liable to pay compensation under the Contract amounting to the full value of the Performance Security or more, the Procuring Entity may call the full amount of the Performance Security.

76.4 The Performance Security furnished at the time of signing of the Contract Agreement shall be substituted, after the issuance of certificate of Completion of works by the Project Manager, by a new Security covering fifty (50) percent amount of the Performance Security to cover the Defects Liability Period.
76.5 If there is no reason to call the Performance Security, the
Performance Security shall be discharged by the Procuring
Entity and returned to the Contractor after the Defects
Liability period has passed and the Project Manager has
certified in the form of Defects Corrections Certificates.

77. Provisional
Sums
77.1 Provisional Sums shall only be used, in whole or in part, in
accordance with the Project Manager’s instructions and the
Contract price shall be adjusted accordingly. The total sum
paid to the Contractor shall include only such amounts, for
the work, supplies or services to which the Provisional
Sum relates, as the Project Manager shall have instructed.

77.2 Plants, Materials or Services to be purchased by the
Contractor under the provisions of GCC Sub Clause 77.1
from Nominated Subcontractor(s) or for meeting the other
expenditures under the Contract, and for which there shall
be included in the Contract price, the actual amounts paid
or due to be paid by the Contractor, and a sum for VAT,
profit and overhead charges, as applicable, calculated as a
percentage of these actual amounts by applying the
relevant percentage rate stated in the PCC.

77.3 The Contractor shall, when required by the Project
Manager, produce quotations, invoices, vouchers and
accounts or receipts in substantiation of purchases under
GCC Sub Clause 77.2.

78. Dayworks
78.1 If applicable, the Dayworks rates in the Contractor’s Tender
shall be used for small additional amounts of work only
when the Project Manager has given written instructions in
advance for additional work to be paid for in that way.

78.2 All works to be paid for as Dayworks shall be recorded by
the Contractor on forms approved by the Project Manager.
Each completed form shall be certified and signed by the
Project Manager within seven (7) days of the works being
done.

78.3 The Contractor shall be paid for Dayworks subject to
obtaining signed Dayworks forms.

79. Cost of
Repairs to
Loss or
Damages
79.1 Loss or damage to the Works or Materials to be
incorporated in the Works between the Start Date and the
end of the Defects Liability Period shall be remedied by the
Contractor at the Contractor’s own cost, if the loss or
damage arises from the Contractor’s acts or omissions.

E. Completion of the Contract

80. Completion
80.1 The Contractor shall apply by notice to the Project
Manager for issuing a Completion Certificate of the Works,
and the Project Manager shall do so upon deciding that the
work is completed.
81. Taking Over

81.1 The Procuring Entity shall take over the Site and the Works within seven (7) days of the Project Manager’s issuing a certificate of Completion.

82. Amendment to Contract

82.1 The amendment to Contract shall generally include extension of time to the Intended Completion Date, increase or decrease in original Contract price and any other changes acceptable under the conditions of the Contract.

82.2 The Procuring Entity, in accordance with the Delegation of Financial Power or sub-delegation thereof, shall amend the Contract incorporating the changes introduced to the original terms and conditions of the Contract in line with the Rules.

83. Final Account

83.1 The Contractor shall submit with a detailed account of the total amount that the Contractor considers payable under the Contract to the Project Manager before the end of the Defects Liability Period.

83.2 The Project Manager shall certify the Final Payment within fifty six (56) days of receiving the Contractor’s account if the payable amount claimed by the Contractor is correct and the corresponding works are completed.

83.3 If it is not, the Project Manager shall issue within fifty six (56) days a Defects Liability Schedule that states the scope of the corrections or additions that are necessary.

83.4 If the Final Account of Works submitted under GCC Sub Clause 83.1 is unsatisfactory even after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

84. As-built Drawings and Manuals

84.1 If “As Built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the PCC.

84.2 If the Contractor does not supply the Drawings and/or Manuals by the dates specified in GCC Sub Clause 84.1, or they do not receive the Project Manager’s approval, the Project Manager shall withhold a nominal amount specified in the PCC from payments due to the Contractor.

85. Force Majeure

85.1 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind stated below:

(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies;

(b) rebellion, terrorism, sabotage by persons other than the Contractor’s personnel, revolution, insurrection,
military or usurped power, or civil war;
(c) riot, commotion, disorder, strike or lockout by persons other than the Contractor’s personnel;
(d) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor’s use of such munitions, explosives, radiation or radio-activity;
and

(e) natural catastrophes such as fires, floods, epidemics, quarantine restrictions, freight embargoes, cyclone, hurricane, typhoon, tsunami, storm surge, earthquake, hill slides, landslides, and volcanic activities.

86. Notice of Force Majeure

86.1 If a party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice, within fourteen (14) days after the party became aware, to the other party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented.

86.2 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either party to make payments to the other party under the Contract.

87. Consequences of Force Majeure

87.1 If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC Sub Clause 86, and suffers delay and/or incurs cost by reason of such Force Majeure, the Contractor shall be entitled subject to GCC Sub Clause 93 to:

(a) an extension of time for any such delay, if completion is or will be delayed, under GCC Clause 45, and

(b) if the event or circumstance is of the kind described sub-paragraphs (a) to (e) of GCC Sub Clause 85.1 occurs in the Country, payment of any such cost, including the costs of rectifying or replacing the Works and Physical services damaged or destructed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC Clause 37.

87.2 After receiving notice under GCC Sub Clause 86.1, the Project Manager shall proceed to determine these matters under the provisions of the Contract.

88. Release from Performance

88.1 Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both parties to fulfil its or their contractual obligations or which, under the
law governing the Contract, entitles the parties to be released from further performance of the Contract, then upon notice by either party to the other party of such event or circumstance:

(a) the parties shall be discharged from further performance, without prejudice to the rights of either party in respect of any previous breach of the Contract, and

(b) the sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under GCC Sub Clause 90.3 if the Contract had been terminated under GCC Sub Clause 89.3.

F. Termination and Settlement of Disputes

89. Termination 89.1 Termination for Default

(a) The Procuring Entity or the Contractor, without prejudice to any other remedy for breach of Contract, by giving twenty eight (28) days written notice of default to the other party, may terminate the Contract in whole or in part if the other party causes a fundamental breach of Contract.

(b) Fundamental breaches of the Contract shall include, but shall not be limited to, the following:

(i) the Contractor stops work for twenty-eight (28) days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Project Manager;

(ii) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within eighty four (84) days;

(iii) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;

(iv) the Contractor does not maintain a Security, which is required;

(v) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of Liquidated Damages can be paid, as specified in GCC Sub Clause 73;

(vi) the Contractor has subcontracted the whole of the Works or has assigned the Contract without the required agreement and without the approval of the Project Manager;
(vii) the Contractor, in the judgment of the Procuring Entity has engaged in corrupt or fraudulent practices, as defined in GCC Sub Clause 39, in competing for or in executing the Contract.

(viii) A payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within eighty-four (84) days of the date of the Project Manager’s certificate.

89.2 Termination for Insolvency
The Procuring Entity and the Contractor may at any time terminate the Contract by giving twenty eight (28) days written notice to the other party if either of the party becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to any party, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the other party.

89.3 Termination for Convenience
(a) The Procuring Entity, by giving twenty eight (28) days written notice sent to the Contractor, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Procuring Entity’s convenience, the extent to which performance of the Contractor under the Contract is terminated, and the date upon which such termination becomes effective.

(b) The Procuring Entity shall not terminate the contract under GCC Sub Clause 89.3 (a) in order to execute the Works itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor as stated under GCC Sub Clause 89.1(a).

89.4 In the event the Procuring Entity terminates the Contract in whole or in part, the Procuring Entity shall accept the portion of the Works that are complete and ready for handing over after the Contractor’s receipt of notice of termination of the Contract. For the remaining portion of the Works, the Procuring Entity may elect:

(a) to have any portion completed by the Contractor at the Contract terms and prices; and/or

(b) to cancel the remainder and pay to the Contractor an agreed amount for partially completed Works and for materials and parts previously procured by the Contractor, or

(c) except in the case of termination for convenience as stated under GCC Sub Clause 89.3., engage
another Contractor to complete the Works, and in that case the Contractor shall be liable to the Procuring Entity for any cost that may be incurred in excess of the sum that would have been paid to the Contractor, if the work would have been executed and completed by him or her.

89.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as is reasonably possible.

90. Payment upon Termination

90.1 If the Contract is terminated because of a fundamental breach of Contract under GCC Sub Clause 89.1 by the Contractor, the Project Manager shall issue a certificate for the value of the Works done and Plant and Materials ordered less advance payments received up to the date of the issue of the certificate and less the amount from percentage to apply to the contract value of the works not completed, as indicated in the PCC. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

90.2 If the Contract is terminated for the Procuring Entity’s convenience or because of a fundamental breach of Contract by the Procuring Entity, the Project Manager shall issue a payment certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s foreign personnel employed solely on the Works and recruited specifically for the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

90.3 If the Contract is terminated for reasons of Force Majeure, the Project Manager shall determine the value of the work done and issue a Payment Certificate which shall include:

(a) the amounts payable for any work carried out for which unit rates or prices are stated in the Contract;

(b) the cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity’s disposal;

(c) other costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;

(d) the cost of removal of Temporary Works and
Contractor’s Equipment from the Site; and

(e) the cost of repatriation of the Contractor’s staff and labour employed wholly in connection with the Works at the date of termination.

91. Property

91.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Procuring Entity if the Contract is terminated because of the Contractor’s default stated under GCC Sub Clause 89.1.

92. Frustration

92.1 If the Contract is frustrated by the occurrence of a situation of Force Majeure as defined in GCC Sub Clause 85, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all works carried out before receiving it and for any work carried out afterwards to which a commitment was made.

G. Claims, Disputes and Arbitration

93. Contractor’s Claims

93.1 If the Contractor considers himself to be entitled to any extension of the Completion Time and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Procuring Entity, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than twenty eight (28) days after the Contractor became aware, or should have become aware, of the event or circumstance.

93.2 If the Contractor fails to give notice of a claim within such period of twenty eight (28) days, the Intended Completion Date shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim.

93.3 Within forty two (42) days after the Contractor became aware or should have become aware of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Project Manager, the Contractor shall send to the Project Manager a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed, for settlement.

94. Settlement of Disputes

94.1 Amicable settlement

The procuring Entity and the Contractor shall use their best efforts to settle amicably all possible disputes arising out of
or in connection with this Contract or its interpretation.

94.2 **Adjudication**

(a) If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within fourteen (14) days of notification of the Project Manager’s decision in writing.

(b) The Adjudicator named in the PCC is jointly appointed by the parties. In case of disagreement between the parties, the Appointing Authority designated in the PCC shall appoint the Adjudicator within fourteen (14) days of receipt of a request from either party.

(c) The Adjudicator shall give its decision in writing to both parties within twenty-eight (28) days of a dispute being referred to it.

(d) The Contractor shall make all payments (fees and reimbursable expenses) to the Adjudicator, and the Procuring Entity shall reimburse half of these fees through the regular progress payments.

(e) Should the Adjudicator resign or die, or should the Procuring Entity and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract; a new Adjudicator will be jointly appointed by the Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor the Adjudicator shall be designated by the Appointing Authority within fourteen (14) days of receipt of a request from either party as stated under GCC Sub Clause 94.2 (b)

94.3 **Arbitration**

(a) If the parties are unable to reach a settlement as per GCC Clauses 94.1 and 94.2 within twenty-eight (28) days of the first written correspondence on the matter of disagreement, then either party may give notice to the other party of its intention to commence arbitration in accordance with GCC Sub Clause 94.3(b).

(b) The arbitration shall be conducted in accordance with the Arbitration Act (**Act No 1 of 2001**) of Bangladesh as at present in force and in the place shown in the PCC.
### Section 4. Particular Conditions of Contract

*In the case of any discrepancy between the Sections 3 and 4, the Section 4 shall prevail.*

<table>
<thead>
<tr>
<th>GCC Clause</th>
<th>Amendments of, and Supplements to, Clauses in the General Conditions of Contract</th>
</tr>
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</table>
| GCC 1.1(j) | The Contractor is
*Name, address, and name of authorized representative* |
| GCC 1.1(ff)| The Procuring Entity is Bangladesh Power Development Board (BPDB)
“BOARD” means Bangladesh Power Development Board (BPDB)
“Engineer” means Director, Directorate of Renewable Energy and Research & Development, BPDB
Name & Address of authorized representative:
The Director,
Directorate of Purchase
Bangladesh Power Development Board
WAPDA Bhaban (9th Floor), Motijheel C/A, Dhaka -1000
Phone: 8802-9550532, Fax: 8802-7126151
| GCC 1.1(gg)| The Project Manager is
**Director, Directorate of Renewable Energy and Research & Development, BPDB, Dhaka**
Or Project Director, a competent person appointed by the Board |
| GCC 1.1(bb)| The original Contract price is *[insert the amount in the NOA]* |
| GCC 1.1(y)| The Intended Completion Date for the project including supply of materials/equipment/ spares/ consumables etc. shall be:
*540 Days from the date of opening of L/C.* |
| GCC 1.1(kk)| The Site is located at **Keraniganj, Dhaka, Bangladesh** and is defined in drawings No: Not Applicable |
| GCC 1.1(nn)| The Start Date shall be: Immediately after opening of L/C |
| GCC 1.1(rr)| The Works consist of
As mentioned in Section 7, General Specification |
| GCC 2.5 | The Sectional Completion Dates are: As mentioned in the offer |
| GCC 3.1 | The Procuring Entity’s address for the purpose of communications under this contract is:
The Director
Directorate of Purchase |
| **Bangladesh Power Development Board**  
| WAPDA Bhaban (9th Floor), Motijheel C/A, Dhaka -1000  
| Phone:8802-9550532, Fax: 8802-7126151 |

The Contractor’s address for the purpose of communications under this contract is:
Contact person:
Address:
Tel:
Fax:
e-mail address:

| **GCC 6.1 (j)** | Other documents forming part of the Contract are:  
|  | All correspondences between Procuring Entity and Tenderer prior to signing of the Contract agreement. |

| **GCC 9.1** | A Contractor or a Subcontractor that is a national of, or registered in, the following countries are not eligible:  
|  | Israel and countries having no diplomatic relation with Government of the People’s Republic of Bangladesh |

| **GCC 9.2** | Materials, Equipment, Plants and supplies shall not have their origin in the following countries:  
|  | Israel and countries having no diplomatic relation with Government of the People’s Republic of Bangladesh |

| **GCC 13.1** | Possession of the Site or part(s) of the Site, to the Contractor shall be given on the following date(s):  
|  | After signing of Contract Agreement |

| **GCC 18** | **Taxes and Duties** |
|  | a) **Bangladesh Income tax and VAT for Income Earned in Bangladesh**  
|  | i) The Contractor shall be entirely liable to pay Income Tax on Contract price for both foreign & local currency according to the prevailing rule (at the date of submission) of Income Tax Ordinance 1984 which shall be deducted at source at the time of payment of bills for onward deposition of the same into Government Treasury. In case of any change of tax rate on the date of payment that will be in account of employer.  
|  | ii) The Contractor shall also be liable to pay VAT arising out of this contract for both foreign & local currency (except CIF) portions according to the VAT Act 1991 at the prevailing rule of the Government (at the date of submission) which shall be deducted at Source at the time of payment of bill for onward deposition of the same into Government Treasury. In case of any change of VAT rate on the date of payment that will be in account of employer.  
|  | iii) The Board shall pay all VAT on CIF portion at the payment stage (If applicable) |
b) For Contractor's equipment, materials imported on re-exportable basis
The Contractor shall be entirely responsible for all Bangladesh Custom and Import duties, VAT, taxes and all other levies imposed under applicable law of Bangladesh for Importation of Contractor's Construction equipment, tools and materials required for implementation of the contract in Bangladesh which shall be imported on the condition to be exported after completion of the work, if the same are not exempted from such taxes, VAT & levies. The Board shall assist to the contractor to obtain exemption from NBR [National Board of Revenue] for import of the contractor's equipment and materials on the basis of re-export.

c) Foreign country Taxes and Permits
The Contractor shall pay all sales, income and other taxes and duties, tariffs and imports that can be lawfully assessed against the contractor by the Government or any lawful authority of any country other than the people's Republic of Bangladesh which has jurisdiction over the contractor in connection with this contract and shall pay for all licenses permits and inspection required for the work including the cost or securing all export licenses and permits for materials, equipment, supplies and personnel exported from that country to Bangladesh.

d) IMPORT DUTY, VAT, TAXES, LEVIES AND OTHER TAXES FOR PERMANENT MATERIALS OF THE WORK
The Contractor shall obtain all import permits or licenses required for any part of the work within the terms stated in the program or if not so stated, in reasonable time having regard to the time for delivery of the work and the time for completion. The Board shall pay all Bangladesh customs and import duties, VAT, taxes and all other levies arising from the importation of all permanent materials and equipment (on CIF Value) as well as spares/consumables. The Board shall provide its extreme effort to pay such taxes in a timely manner to avoid any extra cost thereon. The contractor shall submit to the owner 5 (five) copies of non-negotiable shipping document (as per New Clause GCC 96) ahead of shipment for arranging payment of such taxes and clearing the materials in time.

The Board shall not bear any expenditure on account of import of cement, if any, by the Contractor.

Normally, equipment and materials that will be incorporated in the permanent works shall be transported by vessel. If the Contractor decides to air freight any items, the excess freight beyond freight of vessel or excess inland transportation or any other additional cost on account of air freight shall be borne by the Contractor.

e) CONTRACTOR'S RESPONSIBILITY TO GET ACQUAINTED WITH BANGLADESH LAWS, IMPORT POLICY, ETC.

The Contractor shall get himself acquainted with the relevant Bangladesh Laws as well as the Import Policy of the Government of People's Republic of Bangladesh remaining in force regarding import of banned items, if any, during the execution of the Contract. In case of import of any banned items and/or contraband item, the consequential effect shall rest with the Contractor. Similarly the Contractor shall be responsible for any non-conformance of
Bangladesh Laws either by his own employees or any of the employees of his Subcontractors during execution of the Contract.

**GCC 19.1** Following Key Personnel to carry out the functions stated in the Schedule shall be employed by the Contractor: As mentioned in the offer or Personnel having experience in similar work.

**GCC 21.1** Nominated Subcontractor(s) named below: As mentioned in the Offer or other Subcontractor(s) with the consent of Project Manager/Consignee: Not Applicable.

**GCC 23.1** The Contractual matters between the Procuring Entity and the Contractor shall be decided by Project Manager.

**GCC 37.1** The Contractor shall arrange the Insurance with Bangladesh Sadharan Bima Corporation, Bangladesh in joint name of BPDB and the Contractor and policies shall be taken in freely convertible currency. The minimum insurance cover shall be:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>The maximum deductible for insurance of the Works and of Plant and Materials is: Not Applicable</td>
</tr>
<tr>
<td>(b)</td>
<td>The minimum cover for insurance of the Works and of Plant and Materials in respect of the Contractor’s faulty design is Tk 110% of the value of the works, plant and materials.</td>
</tr>
<tr>
<td>(c)</td>
<td>The maximum deductible for insurance of Equipment is Tk [state amount]. Not Applicable</td>
</tr>
<tr>
<td>(d)</td>
<td>The minimum cover for loss or damage to Equipment is Tk 110% of the replacement value of the equipment</td>
</tr>
<tr>
<td>(e)</td>
<td>The maximum deductible for insurance of other property is: Not Applicable</td>
</tr>
<tr>
<td>(f)</td>
<td>The minimum cover for insurance of other property is 10% of contract price.</td>
</tr>
</tbody>
</table>
| (g) | The minimum cover for personal injury or death insurance: 
  (i) for the Contractor’s employees is as per the law and common practice in Bangladesh. 
  (ii) and for third parties is as per the law and common practice in Bangladesh. |

**GCC 40.1** Commencement Date of Works shall be as follows:
- Date of opening of L/C

**GCC 42.1** The Contractor shall submit a Programme for the Works within fifteen (15) days of signing the Contract.

**GCC 42.2** The period between Programme updates is monthly.

**GCC 42.3** The amount to be withheld for late submission of an updated Programme is: As decided by Project Manager/Consignee.
GCC 52

**Post landing inspection**

Post Landing Inspection shall be done after arrival of the materials/equipment at site. The Post landing Inspection of the materials/equipment shall be conducted by BPDB’s Inspectors or its authorized representative in the presence of the representative of the Contractor. The program of such Inspection shall be intimated to the representative of the Contractor by BPDB upon arrival of the materials/equipment at Site. “Receiving cum Inspection Report” will be prepared after Post Landing Inspection. Any defect or damage have been found at post-delivery inspection, the defective or damaged materials/ goods to be repaired/ replaced by the Bidder/ supplier at his own cost.

GCC 54

**Witnessing of manufacturing process and tests of the equipment/materials and spares at manufacturers' works including transfer of technical know-how.**

It is agreed by the Contractor that BPDB shall send its personnel to carry out witnessing of manufacturing process and tests of concerned equipments/materials and spares at manufacturers' works including transfer of technical know-how and engage a few personnel to inspect the work to be performed at Site under this Contract for compliance with the Contract requirements. The Contractor shall furnish all reasonable aid and assistance required by BPDB or inspectors, for the proper inspection and examination of the work and all parts thereof.

The Contractor shall also bear the cost of round air tickets, hotel accommodations, per diem allowances, internal transportations and out of pocket expenses @ US $ 100.00 per person per day for 07 days (excluding travel time) for the witnessing of manufacturing process and tests of concerned equipment/materials and spares at manufacturers' works including transfer of technical know-how. The number of such personnel will be five (5), at least 2 (two) engineer from the directorate of renewable energy (consignee), for the witnessing of manufacturing process and tests of concerned equipment/materials and spares at manufacturers' works including transfer of technical know-how provided that all goods for the said test witnessing shall be ready at a time. Otherwise number of such personnel will increase depending on number of readiness of the goods.

The Contractor shall obey the directions of BPDB or its designated persons when they are consistent with the obligations of this Contract should the Contractor object to any order given by any BPDB's designated person, the Contractor may make written appeal to BPDB for its decision.

The representatives of BPDB shall be free at all times to perform their duties and any intimidation or attempted intimidation of any one of them by the Contractor or by any of his employees shall be sufficient reasons if BPDB so decides, to terminate the Contract.

Such witnessing/inspection shall not relieve the Contractor from any obligation to perform the work in accordance with the Contract Documents.

Work not so constructed shall be removed and made good by the Contractor at his own expenses.

The programme of witnessing of manufacturing process, factory test and technical know-how transfer shall cover the following:
i) Introduction to the Equipment and Materials.
ii) Familiarization with Production Line/Cycle and equipment used in such Cycle.
iii) Standard of Production.
iv) Production Procedure of the equipment.
v) Quality Control System of produced equipment and goods.
vi) Familiarization Standard of Testing Equipment.
vii) Testing Procedure of the equipment manufactured.
viii) Witnessing of Test as per standard and requirements of Contract Document to ensure and certify the standard specified in the contract.
viii) Operation & Maintenance of the equipment after using it in the system of BPDB.
ix) Any other related matters with Test of Equipment.

TRAINING

The Contractor’s training proposal will be fulfilled in accordance with the training obligation mentioned below.

(1) Foreign Training
The total man-days for training will be limited to 480 (four hundred and eighty) at manufacturer’s factory. 16 (sixteen) round trip air fares from Dhaka, Bangladesh to the Manufacturer's factory, meal, lodging cost transport expenses of the trainees during the period of training including incidental expenses or medical expenses or Medical Insurance from time to time will be covered by the Contractor. In addition, pocket expenses will be US dollar 100 per day per person. The Contractor must indicate in technical offer regarding practical arrangement to ensure a comprehensive training, as well as the methodology used.

Training at manufacturers factory on Operation and Maintenance of Power Plant, Planning and Design, Installation/construction methodology and Project Management Engineering as described below:

<table>
<thead>
<tr>
<th>Sl no.</th>
<th>Item</th>
<th>No. of Person</th>
<th>Person Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Waste to Energy Technology, Operation and Maintenance of the Plant, Project Management, Engineering of Waste to Energy Power Plant.</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Planning &amp; Development [at least 3 (three) engineer from the directorate of renewable energy (consignee)]</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

The Contractor will arrange OEM certified training for operation and maintenance for the trainee. Moreover the contractor will provide all maintenance and operation manual, drawings relating to all the equipment to each trainee on the first day of his arrival at the Manufacturers Premises.

(2) Job Site Training
BPDB shall make available to the Contractor total 10 (ten) BPDB staff members for the purpose of on-the-job training in different fields.
(Operation, Mechanical Maintenance, Electrical Maintenance, I & C maintenance etc.) at site during testing, commissioning and initial operation and warranty period of the plant for 3 (three) month. It shall be the responsibility of the Contractor to train them adequately and properly in a planned manner so that these members of the Board's staff can take over the responsibility of operation and maintenance of the plant and equipment independently. In addition, pocket expenses will be US dollar 15 per day per person. Meal cost of the trainees during the period of training including incidental expenses or medical expenses from time to time will be covered by the Contractor.

GCC 57.1 The Defects liability / warranty shall cover the following:

The Contractor warrants that each item of equipment/ materials and work furnished under this Contract will be as specified and will be free from defects in design to the extent the Contractor is responsible for design, workmanship and material. The warranties contained in this Contract document are in lieu of any other warranties and are the only warranties made by Contractor with respect to the materials, equipment and work. If within the warranty period set forth below any part of the material or work fails to meet the warranty BPDB will notify the Contractor and the Contractor shall promptly correct any defect including non-conformance with specifications by adjustment, repair or replacement of any and all defective parts or materials.

Unless otherwise specified the Defects liability period/ warranty period hereunder shall begin from the date of issuance of Provisional Acceptance Certificate (PAC) by BPDB and shall end after 24 (twenty four) months of operation until final acceptance.

Bidder shall include full Operation as well as preventive and corrective Maintenance (O&M) services for the Plant for a period of two years starting from the system acceptance. Bidder is responsible for having in place all tools and equipment necessary for the performance of the O&M services. Bidder shall carry out and/or manage all planned overhaul maintenance of the system, including major overhauls and inspections.

Above and beyond, Bidder shall continuously monitor the performance of the Plant and carry out maintenance of the whole system including maintenance of CHP unit, waste management system, biogas processing system, boxes of fermentation process etc. are necessary for extracting and maintaining the maximum energy output from the system during warranty period.

Furthermore, the Bidder shall manage all warranty cases including the dismantling, packaging, shipping and / or safe disposal of defective materials.

The Contractor shall pay all costs for correction of defects including shop and field labour and supervision, transportation, parts, supplies, all tackles and special tools.

The Contractor will be given an opportunity to check the existence of the defect and he shall promptly do the correction within reasonable time. This section states the limit of the Contractor's liability for defects for which he is responsible.

When it is necessary to dismantle piping, ducts, machinery, equipment or other work furnished or performed by the Contractor in order to obtain access to the work, the cost of all such dismantling and re-assembling will be paid by the Contractor.
The Contractor shall extend the provisions of this warranty to cover all repaired and replacement parts furnished under the Defects liability/ warranty provisions for a period of 24 (twenty four) months of operation from the date of repair, replacement, commissioning thereof.

If within **twenty (20)** days after BPDB gives the Contractor notice of a defect, the Contractor neglects to make or undertake with due diligence to make the necessary corrections, BPDB is hereby authorized to make the corrections himself or order the work to be done by a third party and cost of the corrections shall be paid by the Contractor. BPDB will be permitted to make repairs or replacements on equipment without affecting the warranty or without prior notice to the Contractor so long as the repairs or replacements involve the correct installation of spares. BPDB shall also be permitted to adjust or test equipment as outlined in instruction manuals provided by the manufacturer.

In the case of an emergency where in the judgment of BPDB the delay resulting from giving formal notice would cause serious loss or damage which could be prevented by immediate action, defects may be corrected by BPDB or a third party chosen by BPDB without giving prior notice to the Contractor and cost of corrections shall be paid by the Contractor. In the event, such action is taken by BPDB, the Contractor will be notified promptly and the Contractor shall assist wherever possible in making the necessary corrections.

The Contractor shall extend the provisions of the Defects Liability Period to cover all repaired and replacement parts furnished under the Defects Liability Period.

### GCC 66.1 Payments

#### i. Local Currency [Bangladesh Taka]

Eligible claims for Local Currency [Bangladesh Taka] payment shall be made by the BOARD by issuing account payee cheque.

#### ii. Foreign currency

Foreign Currency payment shall be made through Letter of Credit (L/C). The charges for establishment of letter of credit within the territory of Bangladesh shall be borne by the BOARD and outside Bangladesh shall be borne by the Contractor. An irrevocable letter of credit shall be opened by the Employer within 45 (forty-five) days after the date of Contract signing.

#### iii. Terms of payment

The BOARD shall make payment to the Contractor in both foreign currency and Bangladesh Taka respectively in the following manner:

1. Foreign currency component
   a. CIF cost of supply of materials and equipment.
   b. Installation and Services viz, charges for the design, erection, testing, commissioning, plant engineering, civil engineering, staff training, supervision of operation and maintenance for twenty four (24) months warranty period.

2. Local Currency [Bangladesh Taka] component
   This will include the total amount to be paid to the Contractor in unconvertible Bangladesh Taka for insurance, local transportation, all services, works, etc.

3. Payment of foreign currency
   The payment of the foreign currency cost of Contract Price will be
made as under:
The foreign exchange component of the Contract Price will be paid out of an irrevocable and unconditional Letter of Credit to be established in favour of the Contractor. All foreign currency payment shall be made upon issuance of Payment advice to the Bank by the concerned office of the BOARD.

All Bank charges for opening, amendment, prolongation and payment out of the L/C within the territory of Bangladesh shall be paid by the BOARD and outside the territory of Bangladesh shall be paid by the Contractor. But in case the amendment of the L/C is required due to the cause of the Contractor, the amendment charge shall be paid by the Contractor.

3.1 Payment of Foreign Currency Portion of the plant and mandatory spare parts supplied from abroad (As per schedule 1.1A)

a. 10% (Ten percent) as an advance payment against receipt of invoice and an irrevocable advance payment security for the equivalent amount made out in favour of Secretary, BPDB. The advance payment security shall be reduced in proportion to the value of the equipment delivered to the site, as evidenced by Receiving cum Inspection Report.

b. 50% (Fifty Percent) of the CIF cost of the Supply of Goods shall be paid out of the irrevocable Letter of Credit within 30 days upon presentation of invoice along with complete shipping documents as per New Clause GCC 96. Payment advice shall be issued to the Bank by the concerned project office of the BOARD upon receipt of the negotiable shipping documents duly verified by project office and approved by the Project Director.

c. 20% (Twenty percent) of the CIF cost of the supply of Goods shall be paid on issuance of Receiving cum Inspection Report against submission of invoices duly verified by project office & certified by the Engineer and approved by the Project Director.

d. 10% (Ten Percent) of CIF cost of the supply of Goods shall be paid only after successful Reliability Test run for 72 hours, Performance tests and after issuance of Provisional Acceptance certificate against submission of invoices duly verified by project office & certified by the Engineer and approved by the Project Director.

e. 10% (Ten Percent) of CIF cost for the supply of Goods shall be paid after issuance of Final Acceptance Certificate against submission of invoice duly verified by project office & certified by the Engineer and approved by the Project Director.

3.2 Installation and service (foreign currency portion)( As per schedule 1.2A, 1.2C, 1.2E)

Amount Payable in foreign currency for the installation/services defined under sub clause 1(b) herein will be paid in the following manner:
a. 70% (Seventy percent) payment upon monthly progress according to the progress of the work at site and provided that the work is performed satisfactorily and in accordance with the stipulation of the Contract documents against submission of invoices/claim bill duly verified by project office & certified by the Engineer and approved by the Project Director.

b. 20% (Twenty percent) upon issuance of the Provisional Acceptance Certificate after successful completion of commissioning and handing over against submission of invoices/claim duly verified by project office & certified by the Engineer and approved by the Project Director.

c. 10% (Ten Percent) upon issuance of the Final Acceptance Certificate after successful completion of warranty period and removal of all defect(s) pointed out by the BOARD and/or the Engineer against submission of invoices/bill duly verified by project office & certified by the Engineer and approved by the Project Director.

4. Payment of Local Currency [Bangladesh Taka] (As per schedule 1.1A, 1.1B, 1.2A, 1.2B, 1.2C, 1.2E)

a. 70% (Seventy percent) upon representation of Board’s “Receiving cum Inspection Report” for each consignment delivered at site and claim bill duly verified by project office & certified by the Engineer and approved by the Project Director.

c. 20% (Twenty percent) upon issuance of Provisional Acceptance Certificate and a claim bill duly verified by project office & certified by the Engineer and approved by the Project Director.

d. 10% (Ten Percent) upon issuance of the Final Acceptance Certificate after successful completion of warranty period and removal of all defect(s) pointed out by the BOARD and/or the Engineer against submission of invoices/bill duly verified by project office & certified by the Engineer and approved by the Project Director.

5. Payment for O & M Services (As per Schedule 1.2D)

a) 90 % (Ninety percent) against monthly Invoice duly verified by the plant manager, certified by the Engineer and issuance of payment advice by the Director, Finance/ Project Director of BPDB.

b) 10% (Ten percent) shall be paid after ending of the particular year of O & M Period against submission of invoice duly verified by the plant manager, certified by the Engineer and issuance of payment advice by the Director, Finance/ Project Director of BPDB.

6. Any individual claim for payment submitted by the Contractor is to be for a minimum sum of 0.5% of the Contract Price.
7. No extra payments in respect of overtime, additional materials or special conditions of hardship shall be claimed by the Contractor unless such payments have been previously authorised in writing by the BOARD.

8. If at any time any payment would fall to be due for a work or portion of a work and if there shall be any defect in portion of such works in respect of which such payment is proposed, BOARD may retain the whole or any portion of such payment. Any sum retained by the BOARD pursuant to the provision of this sub Clause shall be paid to the Contractor after the said defect is removed.

**Procedure for Progress payment against Service**

On or about the first day of each month the Contractor will prepare a bill in prescribed form of the value (As per Breakdown estimate) of the service done up-to such date. The estimated cost of service which, do not conform to the specifications will be deducted from the billed amount. Payment will be made to the Contractor as stipulated above. Such intermediate payment shall be regarded as payment by way of advance against the final payment for work actually done and shall not preclude the requiring of bad, unsound and imperfect work to be removed and reconstructed. Such payments shall not be considered as admission that the Contract performance has been completed nor shall it indicate the accruing or any claim, or shall it conclude, determine or affect in any way the powers of BPDB under this Contract to final settlement and adjustment of the account or in any other way vary or affect the Contract.

**Contractor’s Breakdown Estimate**

The Contractor shall prepare and submit to the Consignee for approval a breakdown estimate for and covering each lump-sum price stated in the Contract. The breakdown estimate, showing the value of each kind of service shall be certified by Project Manager/Consignee and approved by the Engineer before any partial payment estimate is prepared. Such items as bond premium, temporary facilities and plant may be listed separately in the breakdown estimate, provided that their cost can be substantiated.

The sum of the items listed in any breakdown estimate shall equal the Contract lump-sum price or prices, overhead and profit shall not be listed as separate items.

**GCC 66.3**

The particulars of the Bank Account nominated are as follows:

- **Title of the Account:** [insert title to whom the Contract awarded]
- **Name of the Bank:** [insert name with code, if any]
- **Name of the Branch:** [insert branch name with code ,if any]
- **Account Number:** [insert number]
- **Address:** [insert location with district]
- **Tel:**
- **Fax:**
- **e-mail address:**

*Information furnished by the Contractor shall be substantiated by the concerned Bank and authenticated by the Procuring Entity*
| GCC 67 | Contractor shall not be paid interest on the late/ delayed payment |
| GCC 69.1(m) | The following additional events shall also be the Compensation Events:: None |
| GCC 71.1 | The Contract is not subject to price adjustment. |
| GCC 72 | The proportion of payments to be retained is : None |
| GCC 73.1 | The liquidated damages for the whole of the Works are @ 0.1 of one % (Zero point one percent) of the final Contract price per day of delay. |
| | Total amount of liquidated damages shall not exceed ten (10) percent of the final Contract price for the whole of the Works. |
| GCC 74.1 | The Bonus for the whole of the Works is None |
| | The maximum amount of Bonus for the whole of the Works is None |
| GCC 75.1 | The Advance Payment shall be Tk [insert amount] as specified in PCC under the clause GCC 66.1 |
| GCC 77.2 | The percentage for adjustment of Provisional Sums is None |
| GCC 80.1 | Inspection and test will be commence upon a written notice from the Contractor stating that the power plant has successfully completed initial commercial operation for at least 72 hours without any trouble after turnkey work. |
| | After completion of the work Provisional Acceptance Certificate (Completion Certificate) shall be issued as stated below: |

**Provisional Acceptance Certificate (PAC)**

The work shall not be considered as completed until a Provisional Acceptance Certificate (PAC) is issued to the contractor jointly signed by the Project Director and the Engineer on the basis of successful testing and commissioning report submitted by PAC committee formed by the competent authority and stating that all work has been completed satisfactorily. **The PAC will be issued only after the final inspection and performance test has been carried out by a team of representatives of the Contractor and witness and accepted by the PAC committee of BPDB formed by the competent authority and the work has been judged complete and in compliance with the Contract Documents.** The test shall be performed as specified in the applicable Technical Requirements. Appropriate ASME or ISO test procedure to be followed. Necessary testing equipment will be supplied by the Contractor. The final inspection and the performance test of the unit and the subsequent issuance of the PAC shall not be construed as a release to the Contractor from any contractual liability or responsibility, such release being subject only to the provisions of the release of liability clause, New Clause GCC-98. The BPDB may take over completed portions of the work, prior to completion of the Contract, by written notice to the Contractor. The Provisional Acceptance Certificate shall not be unreasonably withheld nor shall the BPDB delay the issuing of the PAC on account of minor omissions or defects, which do not affect the commercial operation without any serious risk to the plant, provided always that the Contractor undertakes to make good...
such omission and defects within a reasonable time. From the date of final inspection and test of completed works, at least three (3) weeks time should be taken for observation to the outcome of the work, after which Provisional Acceptance Certificate should be issued for the work, signed and dated by the Project Director and the Engineer and delivered to the Contractor, provided that no omissions or defects are found which may affect the commercial operation of the plant.

After completion of the Defects Liability Period/Warranty period, Final Acceptance Certificate shall be issued as mentioned below:

**Final Acceptance Certificate (FAC)**

The work shall not be considered as completed until a Final Acceptance Certificate (FAC) is issued to the contractor jointly signed by the Project Director/Plant Manager and the Engineer on the basis of successful report of FAC committee formed by the competent authority and stating that all work has been completed to their satisfaction. The Final Acceptance Certificate (FAC) will be given by the BPDB latest twenty eight (28) days after the expiration of the guarantee period or if different guarantee periods shall become applicable to different parts of the work, after the expiration of the latest of such periods and as soon as any and all work to be made good is completed to the satisfaction of the Engineer and the Project Director/Plant Manager.

<table>
<thead>
<tr>
<th>GCC 84.1</th>
<th>The date by which “as-built” drawings are required is: Within one month from the date of PAC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The date by which operating and maintenance manuals are required is: Within one month from the date of PAC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GCC 84.2</th>
<th>The amount to be withheld for failing to produce “as-built” drawings and/or operating and maintenance manuals by the date required is:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No money will be withheld but Final Acceptance Certificate shall not be issued until the submission of “as-built” drawings and/or operating and maintenance manuals</td>
</tr>
</tbody>
</table>

| GCC 90.1  | The percentage to apply to the contract value of the works not completed, representing the Procuring Entity’s additional cost for completing the uncompleted Works, is twenty (20) percent. |

<table>
<thead>
<tr>
<th>GCC 94.2 (b)</th>
<th>The Adjudicator jointly appointed by the parties is: Will be appointed as and when necessary.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name:</td>
</tr>
<tr>
<td></td>
<td>Address:</td>
</tr>
<tr>
<td></td>
<td>Tel No:</td>
</tr>
<tr>
<td></td>
<td>Fax No:</td>
</tr>
<tr>
<td></td>
<td>e-mail address:</td>
</tr>
</tbody>
</table>

| GCC 94.2(b) | In case of disagreement between the parties, the Appointing Authority for the Adjudicator is the President of the Institution of Engineers, Bangladesh. |

<table>
<thead>
<tr>
<th>GCC 94.3 (b)</th>
<th>The arbitration shall be conducted in the place mentioned below;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dhaka, Bangladesh</td>
</tr>
</tbody>
</table>
**New Clause GCC 95**

**Approval of Engineering Drawing and Data**

Five (5) copies of each drawings and necessary data shall first be submitted to Engineer. Two copies of drawings and data shall be returned to the Contractor marked "APPROVED" "APPROVED AS NOTED", "RETURNED FOR CORRECTION" within 21 days after receipt from the Contractor. If drawings submitted for approval are not returned within 21 days after receipt by the Engineer, the Contractor shall notify Engineer of such fact, and if the drawings still have not been returned within 15 days after such notice the Contractor may proceed as if drawings have been returned approved. When the drawings and data are returned marked "APPROVED AS NOTED" or "RETURNED FOR CORRECTION" the corrections or changes shall be made and five (5) revised copies shall be submitted to Engineer. Two copies of the revised drawings and data will be returned to the Contractor by (15) days from the receipt of the same with due approval, if not anything otherwise specified.

The approval by the Engineer of drawing and data submitted by the Contractor will cover only general conformity to the plans and specifications and the external connections and dimensions which affect the plant arrangement. This approval of drawings returned marked "APPROVED" or "APPROVED AS NOTED" will not constitute a blanket approval of all dimensions, quantities and details of the materials, equipment, device or item shown and does not relieve the Contractor from any responsibility for errors or deviations from the Contract requirements.

All drawings and data after final procession by BPDB shall become a part of the Contract document and the work shown or described thereby shall be performed in conformity therewith unless otherwise required by BPDB.

When the work is completed, two copies of all final approved drawings on AO Size Paper and 1 (One) soft copy shall be sent by the Contractor to the Consignee/ Project Manager.

**New Clause GCC 96**

**Shipping Documents**

No goods will be shipped without prior instruction from the Procurement Entity. Each set of shipping documents will comprise the following:

1. Bill of Lading 1 copy
2. Invoice 1 copy
3. Shipping Specification 1 copy
4. Freight paid memo 1 copy
5. Insurance premium paid memo 1 copy
6. Packing list 1 copy
7. Manufacturer's test certificate 1 copy

The invoices and shipping specifications shall bear the Insurance cover note number.

The shipping documents described above shall be received by BPDB at the latest one week before arrival of cargoes at the port of destination. Set of shipping documents shall be submitted to as follows:
<table>
<thead>
<tr>
<th>New Clause GCC 97</th>
<th>Packing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All equipment and materials shall be suitably coated, wrapped or duly covered in boxes for export shipment and to prevent damage during handling and storage at the site. Card-board containers shall be enclosed in a solid wooden container. Equipment and process materials shall be packed and semi-knocked down to the extent possible to facilitate handling and storage and to protect bearings and other machine surfaces from oxidation. Each container or bundle shall be reinforced with steel strapping in such a manner that breaking of one strap will not cause complete failure of the packaging. The packing shall be of best standards to withstand rough handling and to provide suitable protection from tropical weather while in transit and while awaiting erection at the site.</td>
</tr>
<tr>
<td></td>
<td>Equipment and materials in wooden cases or crates shall be properly cushioned to withstand the abuse of handling, transportation and storage. Packing shall include preservatives suitable to tropical conditions. All machine surfaces and bearing shall be coated with oxidation preventive compound. All parts subject to damage when in contact with water shall be coated with suitable grease and wrapped in heavy asphalt or tar impregnated paper.</td>
</tr>
<tr>
<td></td>
<td>Crates and packing materials used for shipping will become the property of BPDB but the Contractor will be allowed to use the same for the work as needed but the remaining material shall be turned over to BPDB upon completion of the project.</td>
</tr>
<tr>
<td></td>
<td>Packing or shipping units shall be designed within the limitations of the unloading facilities of the receiving ports and the ship which will be used. Ships with special heavy capacity unloading rigging may be required for large units of equipment.</td>
</tr>
<tr>
<td></td>
<td>It shall be the Contractor's responsibility to investigate these limitations and to provide suitable packing and shipping to permit unloading at Chittagong / Dhaka.</td>
</tr>
<tr>
<td></td>
<td>Each package or shipping unit shall be clearly marked or stenciled on at least two sides as follows:</td>
</tr>
</tbody>
</table>

**BANGLADESH POWER DEVELOPMENT BOARD DESIGN, SUPPLY, CONSTRUCTION, TESTING & COMMISSIONING OF MUNICIPAL SOLID WASTE TO 1 ± 10% MW ENERGY CONVERSION PILOT PROJECT AT KERANIGANJ ON TURNKEY BASIS.**

<table>
<thead>
<tr>
<th>New Clause GCC 98</th>
<th>Release of Liability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The acceptance by the Contractor of the last payment shall operate as, and shall be, a release to the BOARD and every officer, agent and employee thereof, from all claims and liability hereunder for anything done or furnished for or relating to the work, or for any act or neglect of the BOARD or of any person relating to or the affecting the work.</td>
</tr>
<tr>
<td></td>
<td>The last payment by the BOARD to the Contractor shall constitute final</td>
</tr>
</tbody>
</table>
| acceptance of all work performed under this Contract and shall release the Contractor and his surety, from all Contractual liabilities and responsibilities to the BOARD except these liabilities assumed under the Warranty clause PCC [GCC 57.1] of these Special Conditions or arising out of hidden defects.

In the event a suit were to be instituted in Bangladesh against the BOARD and the Contractor as defendants neither shall be released from his respective liabilities under this Contract. |
Appendix to the Tender – Not Applicable

[In Tables below, the Procuring Entity shall indicate the source and base values with dates of Indexes, unless otherwise instructed to be quoted by the Tenderer, for the different Cost Components and mention its Weightings or Coefficients]

Table 1.1: Price Adjustment Data – Not Applicable
[ITT Sub Clause 27.10: To be provided by the Procuring Entity]

<table>
<thead>
<tr>
<th>Index Descriptions</th>
<th>Base Value</th>
<th>Sources of Index</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

Note:
1. The sources of Indexes and its values with dates shall be Bangladesh Bureau of Statistics (BBS) unless otherwise mentioned by the Procuring Entity or instructed to be quoted by the Tenderer.
2. The Procuring Entity may require the Tenderer to justify its proposed Indexes, if quoted by the Tenderer.
3. The Base Value of the Indexes shall be those prevailing twenty eight (28) days prior to the deadline for submission of the Tenders.
**Table 1.2: Price Adjustment Data – Not Applicable**

[ GCC Sub Clause 71.1: To be provided by the Procuring Entity]

<table>
<thead>
<tr>
<th>Item Group</th>
<th>Bill No. if applicable</th>
<th>Index Descriptions</th>
<th>Coefficients or Weightings for non-adjustable Cost Component</th>
<th>Coefficients or Weightings for adjustable Cost Components</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**Note:**
The Weightings or Coefficients of the Cost Components shall be mentioned by the Procuring Entity based on the proportion of components involved in the work items caused to be impacted by rise and fall in its prices.
Section 5.  Tender and Contract Forms

<table>
<thead>
<tr>
<th>Form</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW3 – 1</td>
<td>Tender Submission Letter</td>
</tr>
<tr>
<td>PW3 – 2</td>
<td>Tenderer Information</td>
</tr>
<tr>
<td>PW3 – 3</td>
<td>JV Partner Information <em>(if applicable)</em></td>
</tr>
<tr>
<td>PW3 – 4</td>
<td>Subcontractor Information <em>(if applicable)</em></td>
</tr>
<tr>
<td>PW3 – 5</td>
<td>Personnel Information</td>
</tr>
<tr>
<td>PW3 – 6</td>
<td>Bank Guarantee for Tender Security <em>(when this option is chosen)</em></td>
</tr>
</tbody>
</table>

**Contract Forms**

<table>
<thead>
<tr>
<th>Form</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW3 – 7</td>
<td>Notification of Award</td>
</tr>
<tr>
<td>PW3 – 8</td>
<td>Contract Agreement</td>
</tr>
<tr>
<td>PW3 – 9</td>
<td>Bank Guarantee for Performance Security <em>(when this option is chosen)</em></td>
</tr>
<tr>
<td>PW3 – 10</td>
<td>Bank Guarantee for Advance Payment <em>(if applicable)</em></td>
</tr>
<tr>
<td>PW3 – 11</td>
<td>Bank Guarantee for Retention Money Security <em>(when this option is chosen)</em></td>
</tr>
<tr>
<td>PW3-12</td>
<td>Manufacturers Authorization Letter</td>
</tr>
</tbody>
</table>

Forms **PW3-1** to **PW3 -6** comprises part of the Tender Format and should be completed as stated in ITT Clauses 24.

Forms **PW3-7** to **PW3 -12** comprises part of the Contract as stated in GCC Clause 6.
Tender Submission Letter (Form PW3-1)

[This letter should be completed and signed by the Authorised Signatory preferably on the Letter-Head Pad of the Tenderer]

To: [Contact Person] Date: 
[Name of Procuring Entity] 
[Address of Procuring Entity] 

Invitation for Tender No: [indicate IFT No] 
Tender Package No: [indicate Package No] 
This Package is divided into the following Number of Lots [indicate number of Lot(s)]

We, the undersigned, offer to execute in conformity with the Conditions of Contract and associated Contract documents, the following Works and Physical services, viz:

In accordance with ITT Clauses 27 and 28, the following prices and discounts apply to our Tender:

The Tender Price is: [in figures] 
(ITT SubClause 27.1) [in words]

The unconditional discount for being awarded more than one lot in this package is: 
(TTk [in figures] Taka [in words])

The methodology for application of the discount is: 
[state the methodology].

The advance payment is: [state the amount based on percentage of the Tender Price] 
(GCC SubClause 75.1)

and we shall accordingly submit an Advance Payment Guarantee in the format shown in Form PW3–10.

In signing this letter, and in submitting our Tender, we also confirm that:

(a) our Tender shall be valid for the period stated in the Tender Data Sheet (ITT SubClause 33.1) and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(b) a Tender Security is attached in the form of a [state pay order, bank draft, bank guarantee] in the amount stated in the Tender Data Sheet (ITT SubClause 35.1) and valid for a period of twenty eight (28) days beyond the Tender validity date;
(c) if our Tender is accepted, we commit to furnishing a Performance Security within the time stated under ITT Sub Clause 65.2 in the amount stated in the Tender Data Sheet (ITT SubClauses 64.1 and 64.1) and in the form specified in the Tender Data Sheet (ITT Sub Clause 65.1) valid for a period of twenty eight (28) days beyond the date of issue of the Completion Certificate of the Works;

(d) we have examined and have no reservations to the Tender Document, issued by you on [insert date]; including Addendum to Tender Document No(s) [state numbers], issued in accordance with the Instructions to Tenderers (ITT Clause 11). [insert the number and issuing date of each addendum; or delete this sentence if no Addendum has been issued];

(e) we, including as applicable, any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have nationalities from eligible countries, in accordance with ITT Sub Clause 5.1;

(f) we are submitting this Tender as a sole Tenderer in accordance with ITT Sub Clause 40.3

or

we are submitting this Tender as the partners of a JVCA, comprising the following other partners in accordance with ITT Sub Clause 40.3:

<table>
<thead>
<tr>
<th>Name of Partner</th>
<th>Location &amp; District of Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
<td></td>
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<tr>
<td>3</td>
<td></td>
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<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

(g) we are not a Government owned entity as defined in ITT Sub Clause 5.3

or

we are a Government owned entity, and we meet the requirements of ITT Sub Clause 5.3;

(h) we, including as applicable any JVCA partner, declare that we are not associated, nor have been associated in the past, directly or indirectly, with a consultant or any other entity that has prepared the design, specifications and other documents in accordance with ITT Sub Clause 5.5;

(i) we, including as applicable any JVCA partner or Subcontractor for any part of the contract resulting from this Tender process, have not been declared ineligible by the Government of Bangladesh on charges of engaging in corrupt, fraudulent, collusive or coercive practices in accordance with ITT Sub Clause 5.6;

(j) furthermore, we are aware of ITT Clause 4 concerning such practices and pledge not to indulge in such practices in competing for or in executing the Contract;

(k) we intend to subcontract an activity or part of the Works, in accordance with ITT Sub Clause 19.1, to the following Subcontractor(s):

<table>
<thead>
<tr>
<th>Activity or part of the Works</th>
<th>Name of Subcontractor with Location and District</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

87
we, including as applicable any JVCA partner, confirm that we do not have a record of poor performance, such as abandoning the works, not properly completing contracts, inordinate delays, or financial failure as stated in ITT Clause 5.7, and that we do not have, or have had, any litigation against us, other than that stated in the Tenderer Information (Form PW3-2);

we are not participating as Tenderers in more than one Tender in this Tendering process. We understand that your written Notification of Award shall constitute the acceptance of our Tender and shall become a binding Contract between us, until a formal Contract is prepared and executed;

we, including as applicable any JVCA partner, confirm that we do not have a record of insolvency, receivership, bankrupt or being wound up, our business activities were not been suspended, and it was not been the subject of legal proceedings in accordance with ITT Sub Clause 5.8;

we, including as applicable any JVCA partner, confirm that we have fulfilled our obligations to pay taxes and social security contributions applicable under the relevant national laws and regulations of Bangladesh in accordance with ITT Sub Clause 5.9;

we understand that you reserve the right to reject all the Tenders or annul the Tender proceedings, without incurring any liability to Tenderers, in accordance with ITT Clause 60.

<table>
<thead>
<tr>
<th>Signature:</th>
<th>[insert signature of authorised representative of the Tenderer]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>[insert full name of signatory with National ID Number]</td>
</tr>
<tr>
<td>In the capacity of:</td>
<td>[insert capacity of signatory]</td>
</tr>
<tr>
<td>Duly authorised to sign the Tender for and on behalf of the Tenderer</td>
<td></td>
</tr>
</tbody>
</table>

[If there is more than one (1) signatory, or in the case of a JVCA, add other boxes and sign accordingly]. Attachment 1:
(ITT Sub Clause 40.3)
Written confirmation authorising the above signatory(ies) to commit the Tenderer

[and, if applicable]

Attachment 2:
(ITT Sub Clause 29.2(b))
Copy of the JVCA Agreement / Letter of Intent to form JVCA with draft proposed Agreement
## Tenderer Information (Form PW3-2)

*This Form should be completed only by the Tenderer, preferably on its Letter-Head Pad*

| Invitation for Tender No: |  |
|---------------------------|  |
| Tender Package No:        | [indicate Package No] |
| This Package is divided into the following Number of Lots: | [indicate number of Lot(s)] |

<table>
<thead>
<tr>
<th>1. Eligibility Information of the Tenderer [ITT –Clauses 5&amp; 29]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Nationality of individual or country of registration</td>
</tr>
<tr>
<td>1.2 Tenderer’s legal title</td>
</tr>
<tr>
<td>1.3 Tenderer’s registered address</td>
</tr>
<tr>
<td>1.4 Tenderer’s legal status [complete the relevant box]</td>
</tr>
</tbody>
</table>

- Proprietorship
- Partnership
- Limited Liability Concern
- Government-owned Enterprise
- Others [please describe, if applicable]

<table>
<thead>
<tr>
<th>1.5 Tenderer’s year of registration</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>1.6 Tenderer’s authorised representative details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>National ID number</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Telephone / Fax numbers</td>
</tr>
<tr>
<td>e-mail address</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.7 Litigation [ITT Cause 13]</th>
</tr>
</thead>
<tbody>
<tr>
<td>If there is no history of litigation or no pending litigation then state opposite “None”. If there is a history of litigation, or a number of awards, against the Tenderer provide details below</td>
</tr>
<tr>
<td>A. Arbitration Awards made against</td>
</tr>
</tbody>
</table>

|  |
|  |
### B. Arbitration Awards pending

<table>
<thead>
<tr>
<th>Year</th>
<th>Matter in dispute</th>
<th>Value of Award</th>
<th>Value of Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

1.8 Tenderer to attach photocopies of the original documents mentioned aside

[All documents required under ITT Clauses 5 and 29]

The following two information are applicable for National Tenderers

1.9 Tenderer’s Value Added Tax Registration (VAT) Number

1.10 Tenderer’s Tax Identification Number (TIN)

[The foreign Tenderers, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]

### 2. Qualification Information of the Tenderer [ITT Clause 32]

#### 2.1 General Experience in Construction Works of Tenderer

<table>
<thead>
<tr>
<th>Start Month Year</th>
<th>End Month Year</th>
<th>Years</th>
<th>Contract No and Name of Contract</th>
<th>Name and Address of Procuring Entity</th>
<th>Brief description of Works</th>
<th>Role of Tenderer [Prime/Sub Management]</th>
</tr>
</thead>
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</tbody>
</table>

#### 2.2 Specific Experience in Construction Works of Tenderer

**Completed Contracts of similar nature, complexity and methods/construction technology**

<table>
<thead>
<tr>
<th>Contract No</th>
<th>Name of Contract</th>
<th>Role in Contract [tick relevant box].</th>
<th>Prime Contractor</th>
<th>Subcontractor</th>
<th>Management Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[insert reference no]</td>
<td>[insert name]</td>
<td>Prime Contractor</td>
<td>Subcontractor</td>
<td>Management Contractor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Award date</th>
<th>Completion date</th>
</tr>
</thead>
<tbody>
<tr>
<td>[insert date]</td>
<td>[insert date]</td>
</tr>
<tr>
<td>Total Contract Value</td>
<td>[insert amount]</td>
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<td>----------------------</td>
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</tr>
<tr>
<td>Procuring Entity’s Name</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Tel / Fax</td>
<td></td>
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<tr>
<td>e-mail</td>
<td></td>
</tr>
<tr>
<td>Brief description with justifications of the similarity compared to the Procuring Entity’s requirements</td>
<td>[state justification in support of its similarity compared to the proposed works]</td>
</tr>
</tbody>
</table>

### 2.3 Average annual construction turnover [ITT Sub Clause 15.1(a)]

**[amount invoiced to Procuring Entity(s) for each year of works in progress or completed, using rate of exchange at the end of the period reported]**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount &amp; Currency</th>
<th>Taka or Equivalent Taka</th>
</tr>
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<tbody>
<tr>
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</tbody>
</table>

### 2.4 Financial Resources available to meet the construction cash flow [ITT SubClause 15.1(b)]

<table>
<thead>
<tr>
<th>No</th>
<th>Source of Financing</th>
<th>Amount Available</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

In order to confirm the above statements the Tenderer shall submit, as applicable, the documents mentioned in ITT Sub Clause 32.1(a), (b), (c) & (d)...

### 2.5 Contact Details [ITT Sub Clause 32.1 (g) & (i)]

Name, address, and other contact details of Tenderer Bankers and other Procuring Entity(s) that may provide references, if contacted by this Procuring Entity...

### 2.6 Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 32.1(e)]
<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Years of General Experience</th>
<th>Years of Specific Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

[Tenderer to complete details of as many personnel as are applicable. Each personnel listed above should complete the Personnel Information (Form PW3-5)]

### 2.7 Major Construction Equipment proposed to carry out the Contract [ITT Sub Clause 32.1(f)]

<table>
<thead>
<tr>
<th>Item of Equipment</th>
<th>Condition (new, good, average, poor)</th>
<th>Owned, leased or to be purchased (state owner, lessor or seller)</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

[Tenderer to list details of each item of major construction equipment, as applicable]
### JVCA Partner Information (Form PW3-3)

*This Form should be completed by each JVCA partner.*

<table>
<thead>
<tr>
<th>Invitation for Tender No:</th>
<th>[indicate IFT No]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender Package No</td>
<td>[indicate Package No]</td>
</tr>
<tr>
<td>This Package is divided into the following Number of Lots</td>
<td>[indicate number of Lot(s)]</td>
</tr>
</tbody>
</table>

#### 1. Eligibility Information of the JVCA Partner [ITT – Clauses 5 & 29]

1.1 Nationality of Individual or country of Registration

1.2 JVCA Partner’s legal title

1.3 JVCA Partner’s registered address

1.4 JVCA Partner’s legal status *[complete the relevant box]*
   - Proprietorship
   - Partnership
   - Limited Liability Concern
   - Government-owned Enterprise
   - Other (please describe, if applicable)

1.5 JVCA Partner’s year of registration

1.6 JVCA Partner’s authorised representative details
   - Name
   - National ID number
   - Address
   - Telephone / Fax numbers
   - e-mail address

1.7 Litigation [ITT Sub Cause 13]
   - If there is no history of litigation or no pending litigation then state “None”. If there is a history of litigation, or a number of awards, against the JVCA Partner provide details below:

<table>
<thead>
<tr>
<th>A. Arbitration Awards made against</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
</tr>
<tr>
<td>------</td>
</tr>
</tbody>
</table>

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93
<table>
<thead>
<tr>
<th>Award</th>
<th>Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>

B. Arbitration Awards pending

<table>
<thead>
<tr>
<th>Year</th>
<th>Matter in dispute</th>
<th>Value of Claim</th>
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<tbody>
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</tbody>
</table>

1.8 JVCA Partner to attach copies of the original documents mentioned aside [All documents required under ITT Clauses 5 and 29]

The following two information are applicable for national JVCA Partners only

1.9 JVCA Partner’s Value Added Tax Registration (VAT) Number

1.10 JVCA Partner’s Tax Identification Number (TIN)

[The foreign JVCA Partners, in accordance with ITT Sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]

2. Key Activity(ies) for which it is intended to be joint ventured [ITT Sub Clause 18.2 & 18.3]

<table>
<thead>
<tr>
<th>Elements of Activity</th>
<th>Brief description of Activity</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

3. Qualification Information of the JVCA Partner [ITT Clause 32]

3.1 General Experience in Construction Works of JVCA Partner

<table>
<thead>
<tr>
<th>Start Month Year</th>
<th>End Month Year</th>
<th>Years</th>
<th>Contract No and &amp; Name of Contract Name and Address of Procuring Entity Brief description of Works</th>
<th>Role of JVCA Partner [Prime/Sub Management]</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.2 Specific Experience in Construction Works of JVCA Partner

<table>
<thead>
<tr>
<th>Contract No</th>
<th>[ insert reference no] of [ insert year]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Contract</td>
<td>[insert name]</td>
</tr>
</tbody>
</table>
### 3.3 Average annual construction turnover [ITT Sub Clause 15.1 (a)]

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount &amp; Currency</th>
<th>Taka or Equivalent Taka</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: *Amount invoiced to Procuring Entity(s) for each year of work in progress or completed, using rate of exchange at the end of the period reported

### 3.4 Financial Resources available to meet the construction cash flow [ITT Sub-Clause 15.1(b)]

<table>
<thead>
<tr>
<th>No</th>
<th>Source of financing</th>
<th>Amount available</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*In order to confirm the above statements the JVCA Partner shall submit, as applicable, the documents mentioned in ITT Sub Clause 32.1 (a), (b), (c) & (d)*

### 3.5 Contact Details [ITT Sub Clause 32.1 (g) & (i)]

Name, address, and contact details of Tenderer's Bankers and other Procuring Entity(s) that may provide references if contacted by this Procuring Entity

---

### Table:

<table>
<thead>
<tr>
<th>Role in Contract [tick relevant box]</th>
<th>Prime Contractor</th>
<th>Subcontractor</th>
<th>Management Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award date</td>
<td>[insert date]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion date</td>
<td>[insert date]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Contract Amount</td>
<td>[insert amount]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Procuring Entity’s Name               |                   |               |                       |
| Address                              |                   |               |                       |
| Tel / Fax                            |                   |               |                       |
| e-mail                               |                   |               |                       |
| Brief description with justifications of the similarity compared to the Procuring Entity’s requirements | [state justification in support of its similarity compared to the proposed works] | | |

---

95
<table>
<thead>
<tr>
<th>3.6</th>
<th>Qualifications and experience of key technical and administrative personnel proposed for Contract administration and management [ITT Sub Clause 32.1(e)]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Position</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Tenderer to complete details of as many personnel as are applicable. Each personnel listed above should complete the Personnel Information (Form PW3-5)]

<table>
<thead>
<tr>
<th>3.7</th>
<th>Major items of Construction Equipment proposed for carrying out the works [ITT Sub-Clause 32.1(f)]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Item of Equipment</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Tenderer to list details of each item of Major equipment, as applicable]
Subcontractor Information (Form PW3-4):

[This Form should be completed by each Subcontractor, preferably on its Letter-Head Pad]

<table>
<thead>
<tr>
<th>Invitation for Tender No:</th>
<th>[indicate IFT No]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender Package No</td>
<td>[indicate Package No]</td>
</tr>
<tr>
<td>This Package is divided into the following Number of Lots</td>
<td>[indicate number of Lot(s)]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1. Eligibility Information of the Subcontractor [ITT – Clauses 5 &amp; 29]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Nationality of Individual or country of Registration</td>
</tr>
<tr>
<td>1.2 Subcontractor’s legal title</td>
</tr>
<tr>
<td>1.3 Subcontractor’s registered address</td>
</tr>
<tr>
<td>1.4 Subcontractor’s legal status [complete the relevant box]</td>
</tr>
<tr>
<td>Proprietorship</td>
</tr>
<tr>
<td>Partnership</td>
</tr>
<tr>
<td>Limited Liability Concern</td>
</tr>
<tr>
<td>Government-owned Enterprise</td>
</tr>
<tr>
<td>Other (please describe)</td>
</tr>
<tr>
<td>1.5 Subcontractor’s year of registration</td>
</tr>
<tr>
<td>1.6 Subcontractor’s authorised representative details</td>
</tr>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Address</td>
</tr>
<tr>
<td>Telephone / Fax numbers</td>
</tr>
<tr>
<td>e-mail address</td>
</tr>
<tr>
<td>1.7 Subcontractor to attach copies of the following original documents</td>
</tr>
<tr>
<td>All documents to the extent relevant to ITT Clause 5 and 29 in support of its qualifications</td>
</tr>
</tbody>
</table>

The following two information are applicable for national Subcontractors:

| 1.8 Subcontractor’s Value Added Tax Registration (VAT) Number |
| 1.9 Subcontractor’s Tax Identification Number (TIN) |
[The foreign Subcontractors, in accordance with ITT sub Clause 5.1, shall provide evidence by a written declaration to that effect to demonstrate that it meets the criterion]

2. Key Activity(ies) for which it is intended to be Subcontracted [ITT Sub Clause 19.1]

<table>
<thead>
<tr>
<th>2.1 Elements of Activity</th>
<th>Brief description of Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2 List of Similar Contracts in which the proposed Subcontractor had been engaged

<table>
<thead>
<tr>
<th>Name of Contract and Year of Execution</th>
<th>Value of Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Procuring Entity</td>
<td></td>
</tr>
<tr>
<td>Contact Person and contact details</td>
<td></td>
</tr>
<tr>
<td>Type of Work performed</td>
<td></td>
</tr>
</tbody>
</table>
Personnel Information (Form PW3-5)

[This Form should be completed for each person proposed by the Tenderer on Form PW3-2 & PW3-3, where applicable]

<table>
<thead>
<tr>
<th>Invitation for Tender No:</th>
<th>[indicate IFT No]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender Package No</td>
<td>[indicate Package No]</td>
</tr>
<tr>
<td>This Package is divided into the following Number ofLots</td>
<td>[indicate number of Lot(s)]</td>
</tr>
</tbody>
</table>

A. **Proposed Position** (tick the relevant box)

- ☐ Construction Project Manager
- ☐ Prime Candidate
- ☐ Alternative Candidate
- ☐ Key Personnel
- ☐ Prime Candidate
- ☐ Alternative Candidate

B. **Personal Data**

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Birth</td>
</tr>
<tr>
<td>Years overall experience</td>
</tr>
<tr>
<td>National ID Number</td>
</tr>
<tr>
<td>Years of employment with the Tenderer</td>
</tr>
<tr>
<td>Professional Qualifications:</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>

C. **Present Employment** [to be completed only if not employed by the Tenderer]

<table>
<thead>
<tr>
<th>Name of Procuring Entity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address of Procuring Entity:</td>
</tr>
<tr>
<td>Present Job Title:</td>
</tr>
<tr>
<td>Years with present Procuring Entity:</td>
</tr>
<tr>
<td>Tel No:</td>
</tr>
</tbody>
</table>
Contact [manager/personnel officer]:

### D. Professional Experience

Summarise professional experience over the last twenty years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Company / Project / Position / Relevant technical and management experience.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Bank Guarantee for Tender Security (Form PW3-6)

[This is the format for the Tender Security to be issued by a scheduled bank of Bangladesh or by a foreign bank duly endorsed/authenticated by a scheduled bank of Bangladesh in accordance with ITT Clause 35 & 36]

Invitation for Tender No: Date:

Tender Package No:

To:

[Name and address of the Procuring Entity]

TENDER GUARANTEE No:

We have been informed that [name of Tenderer] (hereinafter called “the Tenderer”) intends to submit to you its Tender dated [date of Tender] (hereinafter called “the Tender”) for the execution of the Works of [description of works] under the above Invitation for Tenders (hereinafter called “the IFT”).

Furthermore, we understand that, according to your conditions, the Tender must be supported by a Bank Guarantee for Tender Security.

At the request of the Tenderer, we [name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk [insert amount in figures and words] upon receipt by us of your first written demand accompanied by a written statement that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer:

a. has withdrawn its Tender after opening of Tenders but within the validity of the Tender Security; or
b. refused to accept the Notification of Award (NOA) within the period as stated under ITT; or
c. failed to furnish Performance Security within the period stipulated in the NOA; or
d. refused to sign the Contract Agreement by the time specified in the NOA; or
e. did not accept the correction of the Tender price following the correction of the arithmetic errors as stated under ITT.

This guarantee will expire

(a) if the Tenderer is the successful Tenderer, upon our receipt of a copy of the Contract Agreement signed by the Tenderer or a copy of the Performance Security issued to you in accordance with the ITT; or
(b) if the Tenderer is not the successful Tenderer, twenty eight (28) days after the expiration of the Tenderer’s Tender validity period, being [date of expiration of the Tender validity plus twenty eight (28) days].

Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature Signature
Notification of Award (Form PW3-7)

Contract No: Date:
To:

[Name of Contractor]

This is to notify you that your Tender dated [insert date] for the execution of the Works for [name of project/Contract] for the Contract Price of Tk [state amount in figures and in words], as corrected and modified in accordance with the Instructions to Tenderers, has been approved by [name of Procuring Entity].

You are thus requested to take following actions:

i. accept in writing the Notification of Award within seven (7) working days of its issuance pursuant to ITT Sub Clause 63.1

ii. furnish a Performance Security in the form as specified and in the amount of Tk [state amount in figures and words], within fourteen (14) days of acceptance of this Notification of Award but not later than [specify date], in accordance with ITT Clause 65.

iii. sign the Contract within twenty eight (28) days of issuance of this Notification of Award but not later than [specify date], in accordance with ITT Sub Clause 69.2.

You may proceed with the execution of the Works only upon completion of the above tasks. You may also please note that this Notification of Award shall constitute the formation of this Contract which shall become binding upon you.

We attach the draft Contract and all other documents for your perusal and signature.

Signed

Duly authorised to sign for and on behalf of [name of Procuring Entity]

Date:
Contract Agreement (Form PW3-8)

THIS AGREEMENT made the [day] day of [month][year] between [name and address of Procuring Entity] (hereinafter called “the Procuring Entity”) of the one part and [name and address of Contractor] (hereinafter called “the Contractor”) of the other part:

WHEREAS the Procuring Entity invited Tenders for certain works, viz, [brief description of works] and has accepted a Tender by the Contractor for the execution of those works in the sum of Taka [Contract price in figures and in words] (hereinafter called “the Contract Price”).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the General Conditions of Contract hereafter referred to.

2. The documents forming the Contract shall be interpreted in the following order of priority:
   (a) the signed Contract Agreement
   (b) the Notification of Award
   (c) the completed Tender and the appendices to the Tender
   (d) the Particular Conditions of Contract
   (e) the General Conditions of Contract
   (f) the Technical Specifications
   (g) the General Specifications
   (h) the Drawings
   (i) the priced Bill of Quantities and the Schedules
   (j) any other document listed in the PCC forming part of the Contract.

3. In consideration of the payments to be made by the Procuring Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procuring Entity to execute and complete the works and to remedy any defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Bangladesh on the day, month and year first written above.

For the Procuring Entity For the Contractor

Signature
Name

National ID No.
Title

In the presence of
Name
Address
Bank Guarantee for Performance Security (Form PW3-9)

[This is the format for the Performance Security to be issued by a scheduled bank of Bangladesh or by a foreign bank duly endorsed/authenticated by a scheduled bank of Bangladesh in accordance with ITT Clause 64, 65, 66 & 67]

Contract No: [insert reference number]  Date: [insert date]

To:
[insert Name and address of Procuring Entity]

PERFORMANCE GUARANTEE No:

We have been informed that [name of Contractor] (hereinafter called “the Contractor”) has undertaken, pursuant to Contract No [insert reference number of Contract] dated [insert date of Contract] (hereinafter called “the Contract”), the execution of works [description of works] under the Contract.

Furthermore, we understand that, according to your conditions, the Contract must be supported by a Bank Guarantee for Performance Security.

At the request of the Contractor, we [name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk [insert amount in figures and in words] upon receipt by us of your first written demand accompanied by a written statement that the Contractor is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

This guarantee is valid until [date of validity of guarantee], consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature  Signature
Bank Guarantee for Advance Payment (Form PW3-10)

[This is the format for the Advance Payment Guarantee to be issued by a scheduled bank of Bangladesh or by a foreign bank duly endorsed/authenticated by a scheduled bank of Bangladesh in accordance with GCC Clause 75]

Contract No: [insert reference number] Date: [insert date]

To:

[insert Name and address of the Procuring Entity]

ADVANCE PAYMENT GUARANTEE No:

We have been informed that [name of Contractor] (hereinafter called “the Contractor”) has undertaken, pursuant to Contract No [insert reference number of Contract] dated [insert date of Contract] (hereinafter called “the Contract”), the execution of works [description of works] under the Contract.

Furthermore, we understand that, according to your Conditions of Contract under GCC Clause 75, the Advance Payment on Contract must be supported by a Bank Guarantee.

At the request of the Contractor, we [insert name of bank] hereby irrevocably undertake to pay you, without cavil or argument, any sum or sums not exceeding in total an amount of Tk [insert amount in figures and in words] upon receipt by us of your first written demand accompanied by a written statement that the Contractor is in breach of its obligation(s) under the Contract conditions, without you needing to prove or show grounds or reasons for your demand of the sum specified therein.

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

This guarantee is valid until [insert date of validity of guarantee], consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature

Signature
Demand Guarantee

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

Beneficiary: [insert Name and Address of the Procuring Entity]

Date: [insert date]

RETENTION MONEY GUARANTEE No.: [insert number]

We have been informed that [insert name of Contractor] (hereinafter called "the Contractor") has entered into Contract Number [insert reference number of the Contract] dated [insert date] with you, for the execution of [insert name of Contract and brief description of Works] (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment, payment of Tk. [insert the amount of the second half of the Retention Money] which becomes due after the Defects Liability Period has passed and certified in the form of Defects Correction Certificate, is to be made against a Retention Money Guarantee.

At the request of the Contractor, we [insert name of Bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Tk. [insert amount in figures] (Taka [insert amount in words]) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor failed to properly correct the defects duly notified in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the payment of the second half of the Retention Money referred to above must have been received by the Contractor on its account number [insert A/C no] at [name and address of Bank].

This guarantee is valid until [insert the date of validity of Guarantee that being twenty eight (28) days beyond the Defects Liability Period]. Consequently, we must receive at the above-mentioned office any demand for payment under this guarantee on or before that date.

Signature

Signature
Manufacturer's Authorisation Letter (Form PW3 -12)

[The Tenderer shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Tenderer shall include it in its tender, if so indicated in the TDS as stated under ITT Sub-Clause24.1 (l)]

<table>
<thead>
<tr>
<th>Invitation for Tender No:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender Package No:</td>
<td></td>
</tr>
<tr>
<td>Tender Lot No:</td>
<td></td>
</tr>
<tr>
<td>To:</td>
<td></td>
</tr>
<tr>
<td>Name and address of Purchaser</td>
<td></td>
</tr>
</tbody>
</table>

WHEREAS

We [insert complete name of Manufacturer], who are official manufacturers of[insert type of goods manufactured], having factories at [insert full address of Manufacturer’s factories], do hereby authorize [insert complete name of Tenderer] to supply the following Goods, manufactured by us [insert name and or brief description of the Goods].

We hereby extend our full guarantee and warranty as stated under GCC Clause 57 of the General Conditions of Contract, with respect to the Goods offered by the above Tenderer.

Signed: [insert signature(s) of authorized representative(s) of the Manufacturer]

Name: [insert complete name(s) of authorized representative(s) of the Manufacturer]
Address: [insert full address including Fax and e-mail]
Title: [insert title]

Date: [insert date of signing]
Section 6. Bill of Quantities and Price Schedule
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No.-1.1 (A): Supplied Plant’s Materials/ Equipment, Spares & Consumables (Manufactured outside Bangladesh, to be imported)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description of items</th>
<th>Qty.</th>
<th>Name of manufacturer &amp; Country of Origin</th>
<th>Unit FOB in FC (USD)</th>
<th>Total FOB in FC (USD)</th>
<th>Freight in FC (USD)</th>
<th>Marine Insurance in FC (USD)</th>
<th>Total CIF in FC (USD)</th>
<th>Inland Transportation, Port Handling Charges and others (BDT)</th>
<th>Insurance for Local Transportation (BDT)</th>
<th>Total cost FC (USD)</th>
<th>LC (BDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Waste Collection Vehicle (Rear Loader) (Minimum Payload 8.0mt)</td>
<td>03 Nos</td>
<td></td>
<td>6=5*3</td>
<td>7</td>
<td>8</td>
<td>9=6+7+8</td>
<td>10</td>
<td>11</td>
<td>12=9</td>
<td>13=10+11</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Truck scale/Weighbridge</td>
<td>01 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(a) Wheel Loader (Minimum Payload 3.0mt)</td>
<td>03 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>(b) Wheel Loader (Minimum Payload 1.0mt)</td>
<td>03 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Dry Fermentation Box (Bio Digestion)</td>
<td>06 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Drying Container (Compost Chamber)</td>
<td>01 Lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Feed hopper with Decompactor</td>
<td>01 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Bio filter</td>
<td>01 Lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Trommel Screen/ Rotary Screen</td>
<td>01 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Power Evacuation &amp; Interconnection facility, Plant Auxiliary Systems including Power</td>
<td>01 Lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Transformer, Metering and Protection System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Firefighting System (multipurpose dry powder each capacity 8kg)</td>
<td>06 Nos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Spare parts for the subsequent 2 year of O&amp;M service after expiry of 2 years warranty period</td>
<td>01 Lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Tenderer:  
Signature:  

Note.-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.  
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No. 1.1 (B): Supplied Plant's Materials/ equipment, Spares & Consumables (Manufactured in Bangladesh)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description of items</th>
<th>Qty.</th>
<th>Name of manufacturer &amp; Country of Origin</th>
<th>Rate up to Site in LC (BDT)</th>
<th>Total Amount upto site in LC (BDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Waste Collection Vehicle (Rear Loader) (Minimum Payload 8.0 mt)</td>
<td>03</td>
<td></td>
<td></td>
<td>6=3*5</td>
</tr>
<tr>
<td>2</td>
<td>Truck scale/Weighbridge</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(a) Wheel Loader (Minimum Payload 3.0 mt)</td>
<td>03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Wheel Loader (Minimum Payload 1.0mt)</td>
<td>03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dry Fermentation Box (Box Digestion)</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Percolate Storage Unit</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Biogas Storage Unit</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Combined Heat and Power Unit</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>PLC System</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Drying Container (Compost Chamber)</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Feed hopper with Decompactor</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Bio filter</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Trommel Screen/Rotary Screen</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Power Evacuation &amp; Interconnection facility, Plant Auxiliary Systems including Power Transformer, Metering and Protection System</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Fire fighting System (multipurpose dry powder each capacity 8kg)</td>
<td>06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Spare parts for the subsequent 2 year of O&amp;M service after expiry of 2 years warranty period</td>
<td>01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Tenderer:

Signature:

Note.-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No.1.2 (A): Design Services

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Qty</th>
<th>Foreign Currency (USD)</th>
<th>Local Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Design of the complete Waste to Energy power plant systems, monitoring system and equipment required to provide the power generating Facility meeting Employer's specification requirements.</td>
<td>3</td>
<td>4</td>
<td>5=3x4</td>
</tr>
<tr>
<td>2</td>
<td>Design of the Substation, Switchyard, complete with all necessary structure</td>
<td>01 (one) Lot</td>
<td>6</td>
<td>7=3x6</td>
</tr>
<tr>
<td>3</td>
<td>Design and construction of evacuation System (Approximately 6km 11kV Line) Complete with the connection of existing 33/11 kV substation</td>
<td>01 (one) Lot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Tenderer:

Signature:

Note.-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

**Schedule No.1.2 (B): Civil Works**

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Description of Service/ work</th>
<th>Qty</th>
<th>Cost in Local Currency (BDT)</th>
<th>Insurance for Service/Work (BDT)</th>
<th>Total Cost Local Currency (BDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Unit cost</td>
<td>Total cost</td>
<td>7 = 5+6</td>
</tr>
<tr>
<td>1</td>
<td>a) All types of survey, soil tests, excavation and development with retaining wall including pile foundation (as per international standard and formation level fixation prior site visit performed by EPC contractor), other necessary tests as per Employer’s requirements described in Bidding Document</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>b) Site filling and development above 9m from MSL (as per international standard and formation level fixation prior site visit performed by EPC contractor)</td>
<td></td>
<td>12,000m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>All necessary works including approach road, fencing, gates, water supply and drainage within the power plant</td>
<td>1 Lot</td>
<td>40,000m³</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Construction of 3 (three) Waste Transfer Station (WTS) having an area of 243m² each and 25m² administrative building inside the WTS for each WTS</td>
<td>1 Lot</td>
<td>400 m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction of Control Room cum Rest Room (2 Storied Building)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Tenderer:

Signature:

Note-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.

Note-2: Currency should be mentioned clearly.

**Note-3: BPDB may exclude the item no 1(b) from scope of work if it is required.**
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No.-1.2 (C): Installation, Testing & Commissioning of Power plant

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Qty</th>
<th>Foreign Currency (USD)</th>
<th>Services</th>
<th>Local Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rate</td>
<td>Total</td>
<td>Rate</td>
</tr>
<tr>
<td>1</td>
<td>Installation, Testing &amp; Commissioning of Power plant</td>
<td>01 (one) Lot</td>
<td>4</td>
<td>5=3x4</td>
<td>6</td>
</tr>
</tbody>
</table>

Name of Tenderer:

Signature:

Note-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No- 1.2 (D): Services for Operation and Maintenance-4 (four) years Operation & Maintenance of plant (2 years warranty for EPC works and following 2 years).

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Description</th>
<th>Qty</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service for the 2 (two) years of O&amp;M during warranty period</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Service for the subsequent 2 (two) years of O&amp;M after expiry of 2 (two) years warranty period</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01 Lot</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Note.-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.  
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No.1.2 (E): Training

<table>
<thead>
<tr>
<th>SI No</th>
<th>Description of Service/ work</th>
<th>Quantity</th>
<th>Cost in Foreign Currency (USD)</th>
<th>Cost in Local Currency (BDT)</th>
<th>Insurance for Service/ Work (BDT)</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Factory Acceptance Test (FAT) -5 (Five) BPDB's Personal -7 (Seven) days</td>
<td>01 lot</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Training at (Manufacturer's Factory) - 16 (Sixteen) BPDB's Personal -Total 30 (thirty) days</td>
<td>01 lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Training at Power Station site -10 BPDB's Personal Duration of Training- - 90 days</td>
<td>01 lot</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name of Tenderer: 
Signature: 

Note-1: If items not covered in the Price Schedule but required for the completion of the project, the Tenderer may add as many rows & details as there are needed.
Note-2: Currency should be mentioned clearly.
"Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis" including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years).

Schedule No. 2: Grand Summary

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Description</th>
<th>Total Foreign Currency(USD)</th>
<th>Total Local Currency (BDT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sch. 1.1(A)</td>
<td>Sch. 1.1(A) Total of Column 12 will be forwarded here</td>
<td>Sch. 1.1(A) Total of Column 13 will be forwarded here</td>
</tr>
<tr>
<td>2</td>
<td>Sch. 1.1 (B)</td>
<td>N/A</td>
<td>Sch. 1.1(B) Total of Column 6 will be forwarded here</td>
</tr>
<tr>
<td>3</td>
<td>Sch. 1.2 (A)</td>
<td>Sch. 1.2(A) Total of Column 5 will be forwarded here</td>
<td>Sch. 1.2(A) Total of Column 7 will be forwarded here</td>
</tr>
<tr>
<td>4</td>
<td>Sch. 1.2 (B)</td>
<td>N/A</td>
<td>Sch. 1.2(B) Total of Column 7 will be forwarded here</td>
</tr>
<tr>
<td>5</td>
<td>Sch. 1.2 (C)</td>
<td>Sch. 1.2(C) Total of Column 5 will be forwarded here</td>
<td>Sch. 1.2(C) Total of Column 7 will be forwarded here</td>
</tr>
<tr>
<td>6</td>
<td>Sch. 1.2 (D)</td>
<td>Sch. 1.2(D) Total of Column 4 will be forwarded here</td>
<td>Sch. 1.2(D) Total of Column 5 will be forwarded here</td>
</tr>
<tr>
<td>7</td>
<td>Sch. 1.2 (E)</td>
<td>Sch. 1.2(E) Total of Column 7 will be forwarded here</td>
<td>Sch. 1.2(E) Total of Column 8 will be forwarded here</td>
</tr>
</tbody>
</table>

Grand Total :

In Word:

Name of Tenderer:

Signature:
Section 7. General Specification
7.1 General:

Given the scenario of global climate change and increasing trend of fossil fuel prices, necessity of producing sustainable renewable energy is significantly growing worldwide. Power generation using biomass or organic waste is considered to be an alternative option which has rising prospects in Bangladesh. Due to favorable climatic conditions, prevailing socio-economic structure and availability of input materials in abundance like organic substrates from farming, forestry etc, power generation from waste is considered a suitable choice in the country.

With this in view, Bangladesh Power Development Board (BPDB) is contemplating to set up a 1 ± 10% MW Waste to Energy Project at Keraniganj near Dhaka in Bangladesh and the capacity of the plant will be further extended in future depending on the successful completion of this pilot project. This will also help BPDB in meeting the current energy demand in Bangladesh. To cope up with the Government’s vision of power generation this project will also contribute and in a more environment-friendly manner.

BPDB will initially install one number 1 ± 10% MW Pilot Project and then the project capacity will be progressively increased with addition of further modules of 1 MW Units leading to an ultimate installed capacity of 10 MW in the final stage. Through this, BPDB intends to invite EPC Proposal from eligible parties for the said 1 ± 10% MW Project expandable on modular basis to the ultimate plant capacity mentioned above. The selection and design of the processes required for implementation of the project shall be done considering the appropriateness of the technology options which should best suit the requirements of the project delineated hereinafter.

7.2 Location of the Plant:

Keraniganj area is located in the south-west of Dhaka City. Keraniganj has an area of 166.87 sq km of which 57.08 sq km is land area and 9.79 sq km is riverine area. Keraniganj is undergoing through urbanization process from sub-urban and rural to urban area. The plant will be set up at Keraniganj upazila of Dhaka District in Bangladesh. Near Dhaleshshori Bridge-1 there is a 100 MW quick rental power plant and adjacent sub-station owned by Powerpac (Shikdar goup). Beside the power plant, some portion of the land of BPDB will be used for the proposed power generation unit.

7.3 Climate Data and System Particulars:

The following climate data of the location of the Power Plant must be taken into account during plant design:

<table>
<thead>
<tr>
<th>Climate Type</th>
<th>Tropical, intense sunshine, heavy rain, humid, Maximum humidity and temperature sometimes occur simultaneously.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Temperature</td>
<td>40°C</td>
</tr>
<tr>
<td>Minimum Temperature</td>
<td>03°C</td>
</tr>
<tr>
<td>Average Temperature</td>
<td>30°C</td>
</tr>
<tr>
<td>Relative Humidity</td>
<td>50% - 100%</td>
</tr>
<tr>
<td>Annual mean Relative Humidity</td>
<td>75%</td>
</tr>
<tr>
<td>Average Annual Rain fall</td>
<td>3454 mm.</td>
</tr>
<tr>
<td>Maximum Wind Velocity</td>
<td>200 km/ hour</td>
</tr>
<tr>
<td>Average isokeraunic level</td>
<td>80 days/year</td>
</tr>
<tr>
<td>Altitude</td>
<td>Sea level to 300 meters</td>
</tr>
<tr>
<td>Atmospherically, Mechanically and Chemical impurities</td>
<td>Moderately Polluted</td>
</tr>
</tbody>
</table>
The following system particulars of the location of the Power Plant must be taken into account during plant design:

<table>
<thead>
<tr>
<th>Sl No</th>
<th>System Characteristics</th>
<th>Voltage Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Normal System Voltage, kV</td>
<td>230 132 33 11</td>
</tr>
<tr>
<td>02</td>
<td>Maximum System Voltage, kV</td>
<td>245 145 36 12</td>
</tr>
<tr>
<td>03</td>
<td>System Frequency, Hz</td>
<td>50 50 50 50</td>
</tr>
<tr>
<td>04</td>
<td>Phase Rotation (Anti-Clock wise)</td>
<td>RST RST RST RST</td>
</tr>
<tr>
<td>05</td>
<td>Type of System Grounding</td>
<td>Solid Solid Solid Solid</td>
</tr>
<tr>
<td>06</td>
<td>Rated Fault Level (3-Phase Symmetrical), MVA, 3sec</td>
<td>16300 6000 1500 500</td>
</tr>
<tr>
<td>07</td>
<td>Basic Insulation Level, kV</td>
<td>750 650 170 75</td>
</tr>
</tbody>
</table>

**Low voltage 415/240 V Characteristic**

<table>
<thead>
<tr>
<th>Sl No</th>
<th>System Characteristics</th>
<th>Voltage Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>08</td>
<td>Normal System Voltage, V Voltage Class</td>
<td>415/240</td>
</tr>
<tr>
<td>09</td>
<td>Type of System Grounding</td>
<td>Solid</td>
</tr>
</tbody>
</table>

### 7.4 Scope of EPC Work and Operation & Maintenance Service:

#### 7.4.1 Scope of EPC Work

The proposed waste to energy plant will be based on dry box dry fermentation technology. The major components of the said plant will consist of Truck Scale/Weighbridge, 5 box digesters, a Combined heat and Power Unit, gas storage unit, percolation storage tank, compressor, associated civil and mechanical infrastructures, piping system, exhaust facility, control system, waste and compost storage facility, trommel screen, drying container (compost chamber), feed hopper with decompactor, bio filter, safety facility, associated pumps, piping arrangement, firefighting facility, electrical power and thermal evacuation facility, sheds and not limited to supply of 6 (six) numbers of wheel loaders etc. The major task of the EPC Contractor will be to design, drawing, manufacture, supply and shipment, fabrication, construction, civil works, installation, testing, commissioning of mechanical/electrical facility including warranty service, land development, fencing, training of engineers, technicians, operators at manufacturer’s premises and at project site as well as 2 years O & M services after successfully completion of 2 years warranty period. The plant output will have to be minimum 430 kW Electrical Power and 480 kW thermal energy using a CHP unit by using 55-60mt waste per day feeding. Moreover, the plant has to deliver approximately 7000 mt compost per annum. The Project life will be 20 years and plant factor should be 95%. The facility should have design for 3 days storing (approx. 200mt) facility for unsorted waste (organic waste) and produced compost. The above tasks associated to the pilot project have to be performed by the EPC Contractor on turnkey basis and the tenderer should ensure future extension provision by adding modules (box) if guaranteed plant performance for pilot plant is achieved. Feeding of digesters shall be in accordance with the design requirement to manage waste and secure stable biogas flow to the CHP unit is necessary. The project completion period is 540 days from the date of opening L/C.
The work shall be carried out in accordance with the conditions of this document, and shall include the followings but not limited to:

1. Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on Turnkey Basis including 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years) including following system/equipment:

   a) Truck Scale/Weighbridge (for waste measurement)
   b) Dry Fermentation Box (Box Digestion)
   c) Percolate Storage Unit
   d) Biogas Storage Unit
   e) Combined Heat and Power Unit
   f) PLC System
   g) Drying Container (compost chamber)
   h) Feed Hopper with Decomposer
   i) Trommel Screen/Rotary Screen
   j) Bio filter
   k) Power Evacuation & Interconnection facility, Plant Auxiliary Systems including Power Transformer, Metering and Protection System.

2. Erection, Installation, Performance testing and commissioning of the complete system.

3. Survey, preparation of drawing, land development, landscaping of the proposed site.

4. EPC contractor will be responsible to design the plant to generate minimum of 430 kW electric power and 480 kW thermal energy.

5. Construction of 3 (three) Waste Transfer Stations (WTS) at different location of Keraniganj Upazila each having an area of 243 m².

6. Waste Collection from Waste Transfer Station to the site as per requirement for plant operation for desired output upto the contract period (2 years warranty for EPC works and the following 2 years).

7. EPC Contractor shall supply 3 (three) nos Waste Collection Vehicle (rear loader) having minimum waste carrying capacity of 8.0 mt (payload) each. Contractor shall also supply total 6 (six) nos Wheel Loader among them 3 (three) nos having minimum operating weight 3.0 mt (payload) each and 3 (three) nos having minimum operating weight 1.0 mt (payload) each.

8. All facility including waste storage, compost storage, 5 Nos fermenter, 5 Nos compost chamber shall be accommodated under the same roof and the height of the roof shall be approximately 15m and area shall not be less than 100m×90m.

9. Civil, Structural and Architectural Work includes supply and construction of all civil and building works, fencing, boundary wall, water supply, drainage & Sewerage system etc for the power plant. The design and construction of all major foundations and buildings shall include piling.

10. Supply of protection and control system, communication facilities etc.

11. Opening and closing of the 2 Nos. Main Gate of the plant at storage area shall be automatic and 1 no. Gate at compost area as per layout in Section 9.

12. Construction of 6 km (apprx) 11kV distribution line with DOG conductor, poles, pole fittings with all necessary equipment.

13. EPC contractor shall provide foreign and local training as per tender document.

The contractor shall also be responsible for Submission of the following minimum
basic engineering documents and drawings for approval of BPDB/Engineer:

a) System Design Description (SDD) for the entire plant and processes
b) Process Flow Diagrams
c) P&I Diagrams
d) Overall Plant Layout based on available plant site area
e) Equipment / Area Layout of the individual plant / systems
f) Key Electrical Single Line Diagram
g) Civil, Structural and Architectural Design Criteria
h) Plant Control System Architecture
i) Project Battery Limits
j) Project Utility Lists
k) List of Equipment in system-wise manner
l) Bill of Quantities (BOQ) in system-wise manner

The contractor shall also be responsible for all the required activities for the successful operation, energy generation & maintenance of the Waste to Energy Power System during 4 years O&M period (2 years warranty for EPC works and the following 2 years).

1) Deputation of engineering and supporting personnel
2) Deputation of security personnel
3) Successful running of the system for guaranteed maintaining of records registers
4) Monitoring controlling trouble shooting maintaining of record, register
5) Supply of all spares, consumables and fixing /application same as the turnkey project
6) Supply & use of consumables throughout the O&M period as per recommendation of the equipment manufacturers
7) Conducting periodical checking testing, overhauling and preventive action during warranty period.
8) General up keeping of all equipment, building, roads and land area.

Continuous monitoring the performance of the CHP unit and regular maintenance of the whole system including waste management system, biogas processing system, boxes of fermentation process etc. are necessary for extracting and maintaining the maximum energy output from the system during 4 years Operation & Maintenance of plant (2 years warranty for EPC works and the following 2 years)

7.4.2 Scope of Operation & Maintenance Service of Plant for 4 years O&M:

The contractor shall be responsible for operating the plant during O&M period and shall provide necessary manpower for uninterrupted operation of the plant. The O&M service of plant shall provide for expert services and spare parts to ensure the smooth operation of the Keraniganj 1 ± 10% MW Municipal Waste to Energy Pilot Power Plant Project (including all inspection, scheduled maintenance work, major maintenance work etc) as well as routine maintenance including periodic cleaning of Plant shall be a part and parcel of O&M service.

Special tools/tackles & Instruments required for the proposed services shall have to be arranged by the O&M service provider at their own arrangement.
Necessary spares and consumables require for the CHP, Power Transformer, PLC System, Dry Fermentation Box, Drying Container (compost chamber), Trommel Screen/Rotary Screen, Feed Hopper with Decomposer, Bio filter, Percolate Storage Unit, Biogas Storage unit, Protection and Control unit, Vehicle Used for Plant, Electrical System etc shall be provided by the O&M service provider during warranty period.

**During 4 (four) years Operation & Maintenance (O&M) Period contractor shall make available Plant Manager-1 No, Engineer-2 Nos. (Electrical Maintenance-1 No, Mechanical Maintenance-1 No), Plant Operator-4 Nos. and Vehicle Operator-5 Nos. for uninterrupted operation of the plant.**

In particular, all spares and consumables shall be provided by the tenderer during Operation and Maintenance (O&M) period of the plant. Tendere shall quote separately the cost of spares and consumable for 2 years O&M after expiry of 2 (two) years warranty period. The spares and consumable for 2 years warranty period shall deemed to be included within the quoted equipment price.

### 7.5 System Requirement:

#### 7.5.1 Site Specific Information

Waste is generated all over the Keraniganj. There are 3 dumping sites where most of the waste of Keraniganj is dumped. These sites are RAJUK's Jhilmil project site of Shuvadda union, Moila potti bonde of Shuvadda union and Teghuria bazar of Teghuria union.

According to the locals, daily 2000 cubic feet waste is dumped in Moila potti bondey site under Shuvadda union and from Aganagar Union Parishad daily 3100 cubic feet of waste is generated from this union. Considering the above information and assumption, the roughly estimated the approximate waste generation per day at Keraniganj Upazilla is 200 mt.

#### 7.5.2 Type and composition of waste:

The waste is mainly composed of the followings:

- Food and Vegetable waste
- Garments/Textile waste
- Plastics and poly-bags
- Agricultural residues
- Paper Products
- Metals
- Glass and ceramics
- Bulbs/Lights
- Wood and wood chips
- Ash/soil
- Others

The waste is found mainly composed of the first three categories ie. Food and Vegetable waste, Garments/textile waste, Plastics and Poly bags. The quantity, quality of the waste in Keraniganj reveals that majority of the waste is water due to the fact that food, vegetables and agricultural residues constitute the lion's share of the waste. But there is also a considerable amount of garments waste, plastics and poly bags found in the dumping sites.
The following waste streams can be generated for an amount of 20,000 mt per year as assumed for the pilot plant.

<table>
<thead>
<tr>
<th>Waste fraction</th>
<th>Share [%]</th>
<th>Quantity of MSW [mt per yr.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic</td>
<td>6.45</td>
<td>1290</td>
</tr>
<tr>
<td>Electric and Electronic</td>
<td>0.11</td>
<td>22</td>
</tr>
<tr>
<td>Food Waste</td>
<td>78.27</td>
<td>15,654</td>
</tr>
<tr>
<td>Fabrics</td>
<td>2.96</td>
<td>592</td>
</tr>
<tr>
<td>Papers</td>
<td>4.45</td>
<td>890</td>
</tr>
<tr>
<td>Wood</td>
<td>3.85</td>
<td>770</td>
</tr>
<tr>
<td>Metals</td>
<td>0.59</td>
<td>118</td>
</tr>
<tr>
<td>Other</td>
<td>3.32</td>
<td>664</td>
</tr>
<tr>
<td>Sum</td>
<td>100.00</td>
<td>20,000</td>
</tr>
</tbody>
</table>

In addition there are 1,825 mt per year of non-recyclable fabric waste which comes directly from the garment industry.

According to the information gathered and the above-mentioned framework conditions the experts decide to propose the following staged scenario for the implementation of a WtE-pilot-plant in Keraniganj:

Stage 1: Implementation of a biogas plant (dry fermentation) for household waste, market waste and commercial waste from restaurants, hotels or comparable organic wastes

Stage 2: RDF-generation from textile waste, screen overflow of compost production and comparable high-calorific wastes for the use in brick kilns

Stage 1 based on the fact that a large amount of organic waste is available in the area to operate a biogas facility economically reliable. Furthermore it is undoubted that the current practice of dumping lead to a variety of environmental problems like ground water and surface water contamination, generation of greenhouse gases, air pollution by burning dump sites and others. Beyond the biogas generation it is possible to produce compost by an aerobic after-treatment of the digested residues.

Stage 2 is an option which connects the amounts of textile waste with the high calorific residues of compost production of stage 1. The produced RDF can be co-incinerated in the brick kilns of Keraniganj.

Stage 1 will be implemented through this pilot project. After observing the success of the stage 1, Stage 2 will be implemented later on.

7.6 Process design and technical assessment

A dry fermentation technology was found potentially suitable for the given framework conditions (as per feasibility study performed by GIZ on July 2015) and had been assessed. Figure 4 of Section 9, Drawings, shows the simplified flow chart of a dry fermentation process.
7.6.1 Description of technology

The dry fermentation process is a batch process. The process distinguishes itself through relatively simple construction of the fermentation plant, a minimum of vulnerable mechanical components, low energy consumption and high resistance to interfering substances.

A dry fermentation biogas plant typically consists of a bunker for substrate storage, a number of fermenters and a block heat and power plant. The size, number and capacity of these components depend on the amount of substrate available at the location.

The dry fermentation process, which is a single-stage batch process, consists of several compounds as shown in Figure 5 of Section 9, Drawings.

In the process of Bio-gas production compost is produced at the final stage and, the ferrous metals will be captured within the compost by an over band magnet separator.

The material leaves the maturation with water content of 35-45%. According to the Bangladesh compost standard marketable compost should have a moisture content of 15% maximum. In order to ensure this moisture content the compost has to be dried by the use of drying containers (compost chamber). The containers are aerated with the heat loss of the combined heat and power units. As the density of the compost material is very high it must be ensured that the dumping height in the container is maximum 2-3 m. The produced compost after fermentation should have dried to make the moisture content of less than 15% and is marketable.

The exhaust air emitted during operation of the plant is cleaned using a bio filter, thus avoiding the emission of odors.

Bidder should design the plant in such a way so that the plant can be expanded in future for Anaerobic Digestion and also to implement the Stage 2: RDF-generation from textile waste, screen overflow of compost production and comparable high-calorific wastes for the use in brick kilns later on.

7.7 Power evacuation

The power produced from the installed waste to energy power plant will be evacuated to National Grid (NG) through the Baghair 33/11 kV, 20 MVA substation of BREB. Approximately 6.0 km 11 kV evacuation line with DOG conductor required to be constructed from proposed plant to Baghair 33/11 kV substation.

7.8 Environmental Considerations

The biogas generation plant should significantly improve the local environmental conditions by pre-treatment and reducing the amount of organic household waste. It should lead to reduction of unmanaged and informal dumping areas. The biogas plant operation and maintenance should not appreciably contribute to the increasing of local traffic. The pre-treatment of household waste should supplement the high demand of organic fertilizers required by the intensive agricultural activities in the Keraniganj area.

The percolate should be prevented penetrating the soil transporting hazardous substances and depositing them in the soil-structure due to the minimized quantity of organic waste. The percolate generation from waste treatment systems and biogas production system should be controlled. Combined with a controlled percolate collection and treatment the water quality within the region should be monitored for protection of rivers, water bodies and vulnerable ground water aquifers.
Collection, handling and working conditions should prevent odors. An impact for neighboring communities is not likely to be expected.

7.8.1 Project Schedule

The first 1 ± 10% MW module of the Pilot Project shall be put into commercial operation (COD) by 540 days from the opening date of L/C.

7.9 EPC Proposal by the Bidder

The EPC proposal shall be submitted by the Bidder as per requirements of BPDB. The Bid shall also include the requirements specified in the Annexures enclosed hereinafter.

7.10. Plant’s Equipment

The proposed waste to energy plant will be based on dry box dry fermentation technology. The major components of the said plant will consist of 5 Nos box digesters, a Combined heat and Power unit including Gas Engine, 5 Nos Drying Container (compost chamber), Feed Hopper with Decompactor, Bio filter, gas storage container, percolation tank, compressor, associated civil and mechanical infrastructures, piping system, exhaust facility, control system, waste storage facility, compost production facility, post compost waste separators, safety facility, associated pumps, piping arrangement, firefighting facility, power and thermal energy evacuation facility, sheds and not limited to supply of 6 (six) numbers of wheel loaders, Trommel Screen/ Rotary Screen etc.

7.10.1 Dry Fermentation Box:

The process has to be a single-step fermentation process that employs batch operation. ‘Single step’, in this sense means that the various degradation reactions (hydrolysis, acidification and methanation) constitute one process step. To produce biogas from MSW mainly from mixed households waste there should be built 5 Nos fermentation boxes/chambers. Each fermenter should have an inner floor area of 7m × 30m with an internal height of 5m. The height of the stacked MSW however, must not exceed 4.0 meters and this has to be typically managed at 3.5m. The plant’s modular construction consisting of several fermenters will allow for expansion if desired to increase the plant capacity. The water retaining reinforced concrete fermentation chamber has to be gas tight to prevent the infiltration of oxygen. This also prevents the leakage of biogas. The fermentation process could be designed to operate either at mesophilic (37-40°C) temperature or at thermophilic (50-55°C) temperatures. Fermentation chamber has to be integrated with floor and wall heating system that could maintain the waste at temperature of 37-40°C or 50-55°C. The plant engineering components should locate in a dedicated technology section housed above the fermenters, the capture and storage of biogas has to be managed through a stainless steel piped biogas ventilation system to a biogas storage tank which has to be built in a separate place. The digesters must have adequate slope toward the rear to provide additional drainage of the substrate and conduct the drained percolate to the drainage channel at the rear wall of the digester. The percolate from the fermenters has to be stored in one insulated and heated tank.

The door of the fermentation chamber must be hydraulic controlled and must be designed in such a way so that there will be no leakage of biogas from the chamber.
during fermentation process. To ensure that the fermentation chamber is not opened before the methane gas is completely drawn from the chamber and safe atmospheric levels of CO₂ and H₂S are reached, there must be an automatic system for measuring and analyzing the air continuously inside the chamber. The values are communicated to the computerized security system controlling the chamber doors. With the exception of loading and unloading MSW from the fermentation chambers, the entire plant must be fully automated by PLC.

Concrete structure must resist the anticipated stresses safely and remain resilient for the expected lifetime of the plant/building. Fermenter floor slab and roof slab shall be power floated finish.

Concrete Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Plant/Building Parts</th>
<th>Compressive Strength N/mm²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fermenter, Chamber, Delivery and mixing halls</td>
<td>Strip Foundations</td>
<td>C25/30(3600 psi)</td>
</tr>
<tr>
<td></td>
<td>Pump Sump</td>
<td>C35/45(5100 psi)</td>
</tr>
<tr>
<td></td>
<td>Floor Slab</td>
<td>C35/45</td>
</tr>
<tr>
<td></td>
<td>External Walls</td>
<td>C35/45</td>
</tr>
<tr>
<td></td>
<td>Internal Walls</td>
<td>C35/45</td>
</tr>
<tr>
<td></td>
<td>Roof (with concrete protection sheet)</td>
<td>C25/30</td>
</tr>
<tr>
<td></td>
<td>Atikka</td>
<td>C25/30</td>
</tr>
<tr>
<td>Percolate Tank</td>
<td>Strip Foundations</td>
<td>C25/30</td>
</tr>
<tr>
<td></td>
<td>Floor Slab</td>
<td>C35/45</td>
</tr>
<tr>
<td></td>
<td>Walls</td>
<td>C35/45</td>
</tr>
<tr>
<td></td>
<td>Roof (with concrete protection sheet)</td>
<td>C25/30</td>
</tr>
<tr>
<td>Pushwalls, Bio filter</td>
<td>Foundation</td>
<td>C25/30</td>
</tr>
<tr>
<td></td>
<td>Wall-temporary storage of organic materials</td>
<td>C35/45</td>
</tr>
</tbody>
</table>

Filling the digesters using batch operation

The organic waste is to be collected in waste storage area and taken to the garage-shaped fermenter by wheel loader. Inoculation takes place by mixing the fresh material with material that already has been in fermenter i.e. 70 % materials has to be removed from fermenter chamber and new organic waste has to be inoculate with the remaining 30% materials. Once it has been filled, the fermenter has to be closed off by a hydraulic hatch and the process of organic waste fermentation initiated. Excess cell fluid (percolation liquid) discharged during the fermentation process is collected by a drainage system and returned to the fermenting material in a cycle to keep it moist. Wall and floor heating is used to keep the temperature of the micro-organisms constant. In this way, the conditions in the fermenter are maintained at an optimum level for the bacteria used in biogas production. This requires neither further mixing of the materials nor the addition of further material.

Continuous generation of electricity and heat

The biogas thus produced is generally will be utilized in a combined heat and power (CHP) unit for generating electricity and thermal energy. Continuous operation of the CHP is ensured by filling and operating several fermenters at staggered time intervals. The electricity generated is fed into the electrical grid. Only a small proportion of the excess heat produced will be used for operating the plant.
Fermenter Ventilation System

The ventilation system must provide sufficient ventilation for the fermenter chamber opening process. Ventilation must accomplish with a controlled piping system (stainless steel, resistant to methane gas and electrical conductivity), backpressure valves and ventilation units.

7.10.2 Percolate Storage Tank and Cycle

The dry fermentation process must be facilitated by the "percolate cycle". This involves the spraying of the MSW with an activated anaerobic sludge that is developed in a separate heated tank. This percolate inoculates the MSW while keeping it moist (>70% moisture). The bathing of the MSW in this activated percolate is key to the process. The percolate tank must be constructed with steel reinforced concrete having a full surface coating of epoxy resin. Percolate tank floor and roof slab shall be power floated finish. There must be a side door of necessary dimension to control or maintenance works of the tank.

In order to drain off excess percolate, a series of stainless steel gutters of required length each with grating has to be built into the fermenter chamber floor. They absorb excess liquid from the percolate sprinkling and route it in a controlled way to a gas tight pipe collection system. From the collection pipe the percolate has to be routed to the insulated covered transfer pump duct (of required capacity) utilizing the following equipment:

- Fill level sensor to switch the lift pump
- Transfer pump (mix pump) with pressure pipe to the percolate storage Tank
- Ventilated air pipe
- Temperature Sensor
- Access Door
- Limit Switch

From the transfer pump duct, which must be equipped with a 3-layer coating and leakage detection system, the fermentation liquid has to be pressure pumped into an insulated percolate storage unit. The percolate storage unit will have the following parts but not limited to

- Inlet pipe end
- Filling level sensor to switch the pump
- Transfer pump (mix pump) with pipes to the chamber sprinkling system
- Water tank for excess pressure safety
- Heating (Wall heating)
- Temperature sensor
- Pressure sensor
- Access door
- Limit switch
- Fermentation chamber connection unit

This percolate storage unit must be installed with adequate capacity (approximately 800±10% m³) to hold enough percolate for the entire fermentation process (even in the case of dry or highly structured material) where excess water may need to be added. The percolate storage unit must be designed in such a way so that it can be heated via a heat exchanger attached to the CHP unit. There will have a temperature meter in the storage unit to take real time percolate temperature measurements so that the heat circulation pump can be controlled and when necessary turned on/off.
The percolate must be pumped to the individual fermentation chambers via stainless steel pipes with adequate capacity. The percolate pipes route to the sprinkling unit of the fermentation chambers through gas tight ceiling ducts. A time sensitive control system determines the maximum percolate sprinkling requirement of the MSW. The cycle comes to an end when the percolate has seeped through the MSW. The remaining bacterial fluid must be collected, siphoned and then transported using the transfer pump duct. This is to ensure that the percolate cannot leave the system in an uncontrolled manner. The percolate tanks and pumping chambers must be designed and develop in such a way so that the flow of the facility can be monitored with SCADA system and must be equipped with level alarms. If the gauge in the percolator storage unit fall below the minimum level required for fermentation of exceptionally dry MSW, there must be a provision to add fresh water or suitable effluents to the percolation tanks. As a general rule the percolate level should be balanced as the percolate is recycled and stored in the final storage chamber. Excessively wet input substrates may result in the production of excess percolate. This excess would be pumped to the adjacent effluent tank.

7.10.3 Heating
The dry box plant has to have provision for heating the fermenters using the heat generated by CHP. The heat generated from the CHP engine will be utilized to maintain the working temperature within the fermenters; the rest should have provision for other uses such as heating compost or other process heat or for external purposes. The thermal energy from the CHP engine is passed to a heat-exchanging device whose operating temperature averages around 85°C. By means of turnouts and heating pumps, warm water is channeled though the heating system of the biogas plant. The fermentation system could be design to operate either at mesophilic temperatures of around 37-40°C or at thermophilic temperatures of around 50-55°C. Heat must be transported through stainless steel pipes with adequate capacity. As it is described above the fermentation chamber floor and wall must be equipped with heating system so that the temperature of the fermenting material could be maintained at 37-40°C or at 50-55°C. The placement of the heat distributor alongside the heat in-feed of the percolate storage units ensures against excess heat exchanges.

7.10.4 Pneumatic Controls
As a utility service the compressor must be designed to produce the required compressed air to activate all pneumatic valves and it will be regulated with an on/off switch. The air pressure lines should be routed to a distribution manifold to facilitate individual valve requirements. In the case of pressure loss or a controlled emergency stop, all pneumatic valves must be depressurized automatically through a closing mechanism, using the spring-break principle, thus securing the plant in a safe operating state and preventing uncontrolled gas leaks. Pneumatic valves will be activated by the air pressure from the respective chambers: The chamber door has to be designed in such a way to open and close manually. When the door is closed, it is pneumatically locked. Compression couplings generate the necessary surface pressure and use it to assure the chamber remains gas tight. In order to open the fermentation chamber door, clamping screws require loosening and a pneumatic release device needs to be operated by hand. Only when gas quantities of ≤ 3 % CH4, < 0.5 % CO2 and > 18 % O2 are measured in the fermentation chamber is allowed to be open the door via the PLC system (green indicator on control panel). The pneumatic lock on the chamber door can then only be opened with a key. There must be a necessary finite time limit within which the chamber door must be opened. If the door is not opened during the allowed time a new approval sequence must be given by the PLC control system based on the content of methane and oxygen in the fermentation chamber.
7.10.5 Trommel Screen/Rotary Screen

A trommel screen, also known as a rotary screen, is a mechanical screening machine used to separate materials, mainly in the mineral and solid-waste processing industries. It consists of a perforated cylindrical drum that is normally elevated at an angle at the feed end. Physical size separation is achieved as the feed material spirals down the rotating drum, where the undersized material smaller than the screen apertures passes through the screen, while the oversized material exits at the other end of the drum.

Suitable for domestic waste, organic material, RDF, compost, industrial waste, building rubble, etc. The machine shall be able to separate the dried compost to three grain sizes, smaller one shall be less than 10 mm, medium sizes grain shall be greater than 10 mm but less than 40 and remaining grain size shall be above 40 mm. The trommel screen shall have different mesh sizes and tools for optimal screening results. The minimum capacity of the trommel screen/rotary screen for screening compost shall be 150 m³ per hour.

Since screening efficiency is directly proportional to the length of the trommel, a shorter trommel screen would be needed at a smaller inclination angle to achieve a desired screening efficiency. The inclination angle should not be below 4° or above 5°. The machine shall have four wheel/twin motor driven trommel drum and shall have self-cleaning trommel drum brushes to clean the drum.

The trommel shall be capable to separate at different grain size of the compost having greater than 30% of moisture. The plant shall be design to set the trommel screen on the same roof of the plant and there shall be enough space inside the plant to store the compost.

7.10.6 Gas Measurement and Storage

After loading the fermentation chambers, the MSW have to keep undisturbed for a period of approximately 4 (four) weeks, during that time the MSW is an aerobically fermented and biogas is produced. A gas analytic device must be installed to determine the gas quality (CH₄, CO₂, H₂S and O₂) which will communicate to the PLC system and the SCADA software interface. The plant operating parameters such as temperature, pressure, gas quantity and quality must be stored in a database. Percolate quantity, valve and plant conditions (fermentation chamber, gas storage, CHP) are monitored via the PLC.

The biogas has to be extracted from the chamber with an explosion and leak proof ventilation mechanism and it will be routed into the gas storage tank built with stainless steel. The internal pressure of the gas storage unit under normal operating conditions must be maintained at a required pressure according to the plant’s parameter. For safety reasons the gas storage tank must be designed to withstand minimum 30 mbar internal pressure. This is must be controlled by the PLC with a further mechanical pressure relief valve that routes the excess biogas to an air. The gas storage tank must be designed with enough capacity (minimum 600 m³) to buffer the biogas even during offline maintenance works on the degasification units of the plant or the CHP unit. When the degasification unit or the CHP unit comes back online the buffered gas can be reprocessed. Under normal operation the gas storage units are loaded to a maximal of 30 - 40 % of capacity via the level control sensor to guarantee enough buffer capacity for operational disturbances.
A hydrogen sulfide level of less than $\leq 100$ ppm is desired. The most biogas stays in the gas storage unit for a period of time while cooling to ambient temperature. During this process the water in the gas condenses and is transferred via a siphon water duct with required size from the deepest point of the gas storage unit to the fermentation chamber below. This process is referred to as passive condensation extraction. Further biogas production takes place in the percolate storage tank. A connection must be mounted on the ceiling of the percolate storage tank to extract biogas produced in the percolate storage tank to gas storage tank.

Continuous measurement of CH$_4$, CO$_2$, H$_2$S and O$_2$ levels and gas volume for each individual fermentation chamber as well as the volume and composition of the mixed gas in the gas storage unit is carried out to monitor the line operation. In a situation where the gas engines are out of operation due to schedule maintenance, forced shutdown, repairing or any other causes, an emergency flare shall burns the surplus biogas to protect the system. The emergency flare has a fully covered flame and is automatically turned on by the level control of the gas storage. It shall burns biogas at about 800 – 850 °C and follows international standards for this duty.

A fermentation chamber gas extraction unit must consist of the following components to each fermentation chamber on a gas tight ceiling conduit but not limited to:

- Valve to the gas storage tank
- Valve for the gas collection pipes with gas meter.
- Hydraulic safety valve for vacuum and pressure gauge

### 7.10.7 Combined Heat and Power Unit

The biogas from the gas storage unit shall be supplied to CHP unit via an individual gas control valve and gas compressor with adequate pressure. Minimum capacity of gas engine of CHP shall be 600 kW and shall have electrical and thermal efficiency not less than 40 %. The CHP units must be installed in a separate, noise dampened containerized unit. The electricity produced by the CHP units will feed into the 11 kV grid and also will be used for internal consumption. To feed the power to grid necessary synchronizing and protection system must be installed according to the plants parameter. A small amount of thermal energy, generated by the CHP units, will be used as process heat in the plant (in-floor and wall heating of dry fermentation chambers etc.).

The accessories to the gas (combustion) generator must include prime mover (heat engine), generator heat recovery, compressors, fire and smoke detectors within the room, a separate electrical control cabinet and remote control that enable the supplier to check the biogas engines on a daily basis or according to requirements. Noise and exhaust gas quality are based on International Best Practices. All the safety design must be in accordance with the International Safety Regulations for Biogas Plants.

Combined heat and power (CHP) systems, also known as cogeneration, generate electricity and useful thermal energy in a single, integrated system. The biogas is captured and burnt in the combustion chamber of gas engine unit and start rotating. This engine is used to rotate a generator through which electricity is generated. A minimum of 430 kW electric energy generation can be expected and a 480 kW production of thermal energy from the plant can be estimated also.
Biogas Alternator Set

The biogas alternator set with all accessories is a 3 phase alternator, which is able to generate a minimum nominal power of 600 kW at 0.8 lagging pf. Low density biogas generator should be used for the plant with methane content of about 30%-45%. The alternator set covers the followings but not be limited to:

- Alternator
- Electronic Governing
- Control Panel
- Platform & coupling
- Silencer and Exhaust pipes
- Technical documentation
- Attached spare parts, tools and accessory
- Batteries for Control panel and start-up
- Safety Flame arrester
- Spare parts for one year
- Temperature Control system

The following information must be mentioned in Biogas Alternator:

i. Name of the manufacturer of Bio Generator.
ii. Month & Year of manufacture.
iii. Country of origin.
iv. List of all accessories
v. Power curve for the generator.

Technical Performance

The generator set shall provide the following protective devices.

- Over-speed shutdown safety protection
- Low oil pressure safety protection
- High oil pressure and high cooling water temperature alarm
- Overload protection
- Over current protection
- Reverse power protection
- Short voltage protection
- Generator overheat protection

7.10.8 Drying Container (Compost Chamber) and Storage Facility

An enclosed screening system for treating the dry compost is a major part of the pilot project. The compost produced after completion of fermentation 70% shall be taken into a drying container (compost chamber) and keep there for approximately 28 days to make the moisture content lower than 15%. Each drying container should have an inner floor area of 7m × 32m with an internal height of 5m. The height of the residue however, must not exceed 2.5m for proper drying of compost. Natural air shall be flown from down of the drying container to dry the compost. Once the composting process is finished, each compost chamber has to be emptied 70% by a wheel loader and shall be taken to trommel screen to separate the compost at different size. The remaining 30% residue shall be inoculated in the compost chamber by mixing with the new fermented waste.
Inside the plant there shall be enough space to store compost. The storage area must be adjacent to the drying container (compost chamber). Delivery and mixing halls floor slab shall be power floated finish.

### 7.10.9 Feed hooper with De-compactor

Feed Hoppers with an integral Decompactor shall be used in the facilities. They are used for taking up, buffering and dosed feeding of green, organic production residues, plastic waste etc. As a means of transportation belt conveyors shall be used.

The above transport systems shall be loaded via wheel loaders. All systems shall be equipped with a decompactor rollers. The decompactor rollers loosen up the input material and ensure even transfer to downstream system components.

Feed Hoppers with Decompackers consist of a heavy, stable and torsion-resistant sheet steel and profile steel structure. They are adapted to the particular requirements of the input material. The minimum capacity of the de-compactor shall be 70 mt per hour.

### 7.10.10 Bio Filter

Biofiltration is a pollution control technique using a bioreactor containing living material to capture and biologically degrade pollutants. Common uses include processing waste water, capturing harmful chemicals or silt from surface runoff, and micro biotic oxidation of contaminants in air. When applied to air filtration and purification, biofilters use microorganisms to remove air pollution. The air flows through a packed bed and the pollutant transfers into a thin biofilm on the surface of the packing material. Microorganisms, including bacteria and fungi are immobilized in the biofilm and degrade the pollutant. Trickling filters and bioscrubbers rely on a biofilm and the bacterial action in their recirculating waters. Biofilter floor slab shall be power floated finish.

The exhaust air emitted from the plant shall be cleaned by using a biofilter, thus avoiding the emission of odors.

### 7.10.11 Truck Scale/Weighbridge

A Truck scale or weighbridge is a large set of scales, usually mounted permanently on a concrete foundation that is used to weigh entire road vehicles and their contents. By weighing the vehicle both empty and when loaded, the load carried by the vehicle can be calculated. The weighbridge machine shall be installed at the gate of the power plant to measure the waste carrying vehicle.

The following set of specifications will describe a fully electronic, pit type, modular steel deck truck scale system, designed to be installed in a deep, pit style foundation. Foundation drawings shall be provided by the manufacturer and scale shall be constructed in accordance with certified drawings.

The scale will be a fully electronic, pit type, steel deck design truck scale. The Pit type weighbridge shall meet the following specification, but not limited to:

- The scale shall have a gross minimum capacity of 50mt.
- Scale shall be a fully electronic design. Mechanical lever systems are not acceptable. Scale weighbridge will consist of factory welded modules having a total longitudinal span of 40’ and platform width of 10’. No field assembly or welding will be allowed.
The scale provided will have an unobstructed weighing surface of 10' wide by 40' in length. A minimum clearance of 48" shall be provided between the concrete floor and the bottom of the weighbridge.

The scale system shall be a full electronic design, with internal self-checking weighbridge. Weighbridges using bumper bolts, externally fixed check rods or embedded bumper plates in the end walls will not be permitted.

The scale shall have a maximum span deflection ratio of no less than 1:3100 under legal highway loading at mid span of module.

The steel deck shall a minimum 1/4" thick and be supported with a minimum of (2) 24" wide flange x 76 lb structural longitudinal beams and a minimum of (8) 6" wide flange x 35 lb cross beams with W6 x 12lb wide flange longitudinal beams for tread plate support. A minimum quantity of (8) crosses members, providing a grid-type weighbridge design. Only structural wide flange beam construction shall be allowed. Weighbridge designs utilizing junior beams and or bent plate shall not be permitted.

The scale instrument shall be housed in an all stainless steel, The instrument shall be 100 percent manufactured by the manufacturer of the weighbridge assembly. The instrument shall be microprocessor based.

The scale instrument shall be fully programmable and configurable according to the needs of the application. Custom programming for the application will be available through common programming techniques.

The instrument shall have the following displayed operational annunciators:
- Gross, Tare, Net, Zero, Motion
- Three units of measurement
- The digital weigh machine shall be suitable for interconnection with the computer and shall have software operated by computer and having capacity to store measuring data for at least 20 years.

7.10.12 Vehicle

**Waste Collection Vehicle**

EPC contractor shall supply 3 (three) nos. waste collection vehicle having minimum waste carrying capacity of each vehicle is 8.0mt (payload). The vehicle shall have a lifting mechanism to automatically empty large carts and shall be hydraulic operated & covered. Contractor shall supply the vehicle in accordance with the relevant international standards.

**Wheel Loader**

EPC contractor shall supply 6 (six) nos wheel loader in accordance with the relevant international standards. Among the 6 (six) wheel loader 3 (three) nos. having minimum operating weight of 3.0mt (payload) each and 3 (three) nos. having minimum operating weight of 1.0 mt (payload) each.

7.11 Electrical Systems

7.11.1 Step up Transformer

The Step up Transformer with all accessories is a 3 phase, 0.4/11kV Transformer, which has a capacity of 1000 KVA.

7.11.1.1 Standards

The equipment specified in this Section shall conform to the latest edition of the appropriate IEC specifications and other recognized international standard. In particular:
### 7.11.1.2 Specifications

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Installation</td>
<td>Outdoor, Tropical, High Rainfall &amp; Humidity</td>
</tr>
<tr>
<td>2.</td>
<td>Type</td>
<td>Core</td>
</tr>
<tr>
<td>3.</td>
<td>Coolant</td>
<td>Mineral oil</td>
</tr>
<tr>
<td>4.</td>
<td>Method of Cooling</td>
<td>ONAN</td>
</tr>
<tr>
<td>5.</td>
<td>Phases</td>
<td>3 (Three)</td>
</tr>
<tr>
<td>6.</td>
<td>Frequency</td>
<td>50 Hz.</td>
</tr>
<tr>
<td>7.</td>
<td>Winding</td>
<td>Two windings of high conductivity copper</td>
</tr>
<tr>
<td>8.</td>
<td>KVA Rating</td>
<td>1000 KVA</td>
</tr>
<tr>
<td>9.</td>
<td>Rated Voltage at no-load</td>
<td>0.415/11 kV</td>
</tr>
<tr>
<td>10.</td>
<td>Vector Group</td>
<td>Ynd1</td>
</tr>
<tr>
<td>11.</td>
<td>Percentage Impedance at 75°C, %</td>
<td>5 %</td>
</tr>
<tr>
<td>12.</td>
<td>No Load Loss</td>
<td>2100 Watts</td>
</tr>
<tr>
<td>13.</td>
<td>Load loss at 75°C</td>
<td>12750 Watts</td>
</tr>
</tbody>
</table>
b) 60°C for Top Oil measured by thermometer Method. |

### 7.11.1.3 Major Components

**H.T WINDING:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal rated voltage</td>
<td>11 kV</td>
</tr>
<tr>
<td>Maximum system voltage</td>
<td>12 kV</td>
</tr>
<tr>
<td>Basic insulation level (minimum)</td>
<td>75 kV</td>
</tr>
<tr>
<td>Tap Changer</td>
<td>+2x2.5%, 0, -2x2.5% of rated kV &amp; all fully rated capacity. Tap Changer shall be off load type, manually operated from an external five-position mechanism.</td>
</tr>
<tr>
<td>Inter phase connection</td>
<td>Y (Wye) with neutral brought out</td>
</tr>
<tr>
<td>Bushings</td>
<td>Porcelain, outdoors type with arcing horns of standard gap, mounted on top of tank. Quantity - 3 Nos.</td>
</tr>
<tr>
<td>Power frequency withstand voltage for one minute</td>
<td>28 kV</td>
</tr>
</tbody>
</table>
### L.T. WINDING:

<table>
<thead>
<tr>
<th>Nominal rated voltage</th>
<th>415 volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest system voltage</td>
<td>457 volts</td>
</tr>
<tr>
<td>Inter phase connection</td>
<td>Delta</td>
</tr>
<tr>
<td>Bushings</td>
<td>Porcelain, outdoor type, mounted on the side of tank. (Longest side) Quantity – 4 nos.</td>
</tr>
<tr>
<td>Power frequency withstand voltage for one minute</td>
<td>2.5 kV</td>
</tr>
</tbody>
</table>

### TRANSFORMER OIL :

<table>
<thead>
<tr>
<th>Application</th>
<th>Insulating mineral oil for Transformer. It will be free from PCB (Poly Chlorinated Biphenyl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade of oil</td>
<td>Class-1</td>
</tr>
<tr>
<td>a) Physical Properties</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid and free from suspended matter or sediment</td>
</tr>
<tr>
<td>Density at 20° C</td>
<td>0.895 g/cm² (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>Flash point (Closed cup)</td>
<td>140° C (Min⁷⁷⁷).</td>
</tr>
<tr>
<td>Kinematics Viscosity at -15° C</td>
<td>800 cSt. (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>Kinematics Viscosity at 20° C</td>
<td>40 cSt. (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>Pour point</td>
<td>-30° C (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>b) Electrical Properties</td>
<td></td>
</tr>
<tr>
<td>Dielectric Strength at 50 Hz (with 2.5 mm standard gap and 40 mm standard depth)</td>
<td>New untreated oil, shall go through filtration treatment before the oils are introduced into the apparatus or equipment. The break down voltage of this oil shall be more than 50 kV.</td>
</tr>
<tr>
<td>Loss tangent/Dielectric dissipation factor at temp. 90° C, stress 500V/mm to 1000 V/mm and frequency 40 Hz to 62 Hz.</td>
<td>0.005 (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>c) Chemical Properties</td>
<td></td>
</tr>
<tr>
<td>Neutralization value</td>
<td>0.03 mg KOH/g (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>Neutralization value after oxidation</td>
<td>0.40 mg KOH/g (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>Total sludge after oxidation</td>
<td>0.10% weight (Max⁷⁷⁷).</td>
</tr>
<tr>
<td>PCB Content</td>
<td>Free from PCB (Poly Chlorinated Biphenyl)</td>
</tr>
<tr>
<td>d) Standards</td>
<td>Performance and testing of oil shall comply with the latest revision of the relevant standards BS 148 : 1972, IEC-60296 or latest revision there on.</td>
</tr>
</tbody>
</table>

### 7.11.1.4 FEATURES AND ACCESSORIES

- a) All bolts and nuts connected with transformer tank, conservator, radiator etc. shall be of non-ferrous metal. If it is ferrous metal, it shall be hot dip galvanized as per standard ASTM A90/BS EN ISO 1461:1999.
- b) Lugs for lifting & towing complete unit.
- c) Facilities for lifting core & coil assembly.
- d) Base designed for platform mounting on poles.
- e) First filling of new oil shall comply with the latest revision of IEC-60296 standard or other equivalent standards.
- f) Each H.T. bushing shall have bolted type bimetallic connector suitable for accommodating proper size of Copper Cable.
- g) Each L.T. bushing shall have bolted type bimetallic connector for accommodating proper size of copper cable.
h) The L.T. bushing shall be installed on the top lengthwise of the transformer body.
i) Dial thermometer for oil temperature mounted on L.T. side of the tank.
j) Earthing terminals at the bottom corners of Tank.
k) Name plate with transformer rating & winding diagram made of stainless steel shall have engraved letters filled with black enamel.
l) The tank & radiator or flanged radiator shall be painted with two coats of gray finishing paint on suitable prime coats.
m) Transformer capacity with Sl.No. and BPDB Contract No. should be marked with emboss/ engrave on the transformer tank adjacent to name plate easily visible from ground as per rating plate.

FOR CONSERVATOR TYPE :

a) Transformer tank completes with covers, necessary openings & gaskets.
b) Complete oil preservation system consisting of an oil conservator with shut-off valve oil level gauge. The system shall have valve for filter press inlet & oil drain. The oil sampling valve & dehydrating breather shall be provided.

7.11.1.5 TRANSFORMER CONSTRUCTION

7.11.1.5.1 GENERAL

The transformers shall be double-wound, oil immersed naturally air cooled and conventional type with tank breathers.

The core shall be high-grade cold rolled electrical sheet steel. The primary and secondary windings shall be constructed form high conductivity copper. All turns of windings shall be adequately supported to prevent movement. In cases where turns are spaced out, suitable inter-turn packing shall be provided.

No material, which can be deleteriously affected by the action of oil under the operating conditions of the transformers, shall be used in the transformers or leads or bushings. Construction features shall permit local repairs to be easily carried out in the event of equipment failure.

7.11.1.5.2 TRANSFORMER TANK

The transformer tank shall be fabricated from steel and be of robust construction; all welds shall be made by the electrical arc welding process and the slag carefully removed after each run.

With the exception of radiator elements, all external joints shall be welded properly. Cooling radiators shall be of robust and simple construction. Complicated shapes shall not be acceptable, and horizontal stiffeners on tanks should be avoided. The bearing surface of the tank to which bushings are clamped shall be substantially flat.

All matching faces or joints to be made oil tight shall be finished with a smooth surface to ensure that the gasketing material will make a satisfactory joint material will make a satisfactory joint. Flanges and covers of tanks shall be of sufficient thickness to prevent any depression occurring, which would retain water around the bolts.

Bolts shall be spaced at sufficiently close intervals to avoid buckling of either flange or covers and provide reasonably uniform compression of the gasket.
Each transformer shall be provided with a minimum of two closed lifting lugs. The minimum diameter of the hole or width of the slot shall be 25 mm. The two lifting lugs shall be located such that there will be a minimum of 50 mm between the lifting chain and the nearest part of the bushings.

All transformers shall be suitable for outdoor mounting on pole platforms and shall have four mounting lugs with 19 mm dia holes suitable for bolting the transformer to the platform. The two lifting lugs shall be located 150 mm on each side of the centre line of the longest sides of the transformers.

The fitting of oil conservators is not mandatory, but the Bidder must state in the tender whether the Bidders design includes oil conservators. Transformers shall be fitted with oil draining and oil filling gate valves, and a breather. The breather shall consist of a looped pipe fitted to the top of the transformer.

The LT Bushings shall be mounted on one of the longest side of the transformer tank. An oil level sight glass shall be fitted and marked with minimum & maximum oil level mark at ambient temperature.

The transformer shall have the hole (dia 3mm) on the top cover and tank in 4 (four) corners for sealing purpose.

7.11.1.5.3 Transformer Core and Coils

Transformers core and coils must be new, unused, and clean.

Supporting frames of the core and coils of transformers shall be designed to accommodate variations in tank height.

The core and coil assembly shall have the core and coils rigidly connected to the tank and suitably closed lugs shall be provided for removing the core and coil assembly from the tank.

Transformer Sl. no. should be marked with emboss on the Supporting frames of the core and coils of each transformers minimum in 2(two) places.

7.11.1.5.4 Transformer Sealing

A satisfactory lid-sealing gasket shall be provided on each of these transformers to maintain the seal at extremes of operating temperature. A cold oil level (COL) mark shall be provided inside each transformer marked COL.

7.11.1.5.5 Finishes

a) Painting

Painting ferrous metal work is to be provided with an effective vapour sealing paint finish, applied generally in accordance with BS 5493 and/or other recognised international standard.

Paint shall be applied to produce a uniform film. Edges corners, crevices, welds, bolts, and rivets shall receive special attention to maintain the required thickness.

Before painting or filling with oil or compound, all un-galvanised parts shall be completely clean and free from rust, scale and grease and all external rough metal surfaces on the casting shall be filled.

The paint system shall be in accordance with best practice for hot and humid locations in a highly aggressive environment. A description of the paint system to be used and the proposed method of application shall be fully described in the Tender.
All external surfaces shall receive a minimum of three coats of paint. The primary coat shall contain an approved rust inhibitor and shall be applied as soon as possible after the completion of the surface preparation. The second coat shall be of oil and weather resisting nature and have a shade of colour easily distinguishable from the primary. The final coat shall be of oil and weather resisting and non-fading glossy paint of a colour agreed by the Engineer.

b) Non-ferrous parts and Bright Steel parts

All exposed metal liable iron corrosion during transport is to be appropriately protected by casting with an approved anti-rusting composition. Other non-ferrous parts shall be adequately protected against corrosion during shipment or in service.

c) Galvanizing

Galvanizing where applicable shall be applied by the hot dipped process generally in accordance with ASTM A90/BS EN ISO 1461:1999 or equivalent standard of metal surface unless specified otherwise.

The zinc coating shall be smooth clean and of uniform thickness and free from defects. The preparation of galvanizing itself shall not adversely affect the mechanical properties of the coated material.

All drilling, punching, cutting, shaping and welding of parts shall be completed and all burrs shall be removed before the galvanizing process is applied.

Surfaces that are in contact with oil shall not be galvanized or cadmium plated.

7.11.1.5.6 RATING PLATE

A brass or stainless steel rating plate shall be fitted to each transformer. The information shall deeply etched including the diagram of the connections of the windings, the vector diagram showing the general phase relations of the transformer, and a diagrammatic plan of the transformer cover showing the terminal positions and marking and other essential particulars. The plate shall be mounted in an accessible position and preferably adjacent to the tapping switch if this is located on the side of the tank.

The rating plate shall be fitted below the LV terminals. Rating and diagram plates shall be attached by a 5 mm brass screw in each corner to 20 mm mild steel brackets welded horizontally approximately 20 mm from the tank side. The following information is to be provided on the rating and diagram plate in the English language – clearly and indelibly marked.

* Transformer type
* Manufacturer’s name
* Manufacturer’s serial number
* Year of Manufacture
* Number of phases
* Rated power
* Rated frequency
* Rated voltages
* Rated currents
* Connection symbol
* Impedance voltage at rated current
* Type of cooling
* Total mass
* Mass of insulating oil
* Insulation levels
* Details regarding tapings

Each Transformer should be marked with emboss or welded on the body easily visible from the ground, with letters of size mentioned against each word(s)/sentence(s) below:

Note :

a) Sl. No. ..................of ............KVA ...... is meant for particular No. of the Transformer out of the contracted quantity under this contract.

b) The above marking on the body of the transformer shall be done in addition to the normal nameplate of the transformer. The nameplate shall be continuous welded on the body of the Transformer before Pre-delivery inspection.

7.11.1.5.7 TERMINAL MARKING

All transformers shall have the primary and secondary terminal markings plainly and indelibly marked on the transformer adjacent to the relevant terminal. These markings shall preferably be 25 mm in height. The terminal marking shall be embossed on the body of the Transformer with respective color code.

7.11.1.5.8 TERMINAL LEADS

Outgoing leads shall be brought out through bushings. The leads shall be such that the core and coils may be removed with the least possible interference with these leads, and they shall be specially supported inside the transformer to withstand the effects of vibration and short circuits.

7.11.1.5.9 BUSHINGS

All bushings shall be porcelain clad, and shall be of the highest quality. They shall be sealed in a manner to prevent ingress of moisture and to facilitate removal. The neutral bushings and stems shall be identical to those provided for phase terminations. Bushing stems, nuts and washers shall be made of brass.

7.11.1.5.10 EARTHING CONNECTIONS

Earthing connections shall be provided with connection facilities for 2x50 mm² copper stranded conductor. The bolts shall be located on the lower side of the transformer and be of M12 size; each shall be clearly indicated with an engraved ‘earth symbol’. Two earthing connections are required on each transformer.

7.11.1.5.11 GASKETS

Any gaskets provided with the transformers shall be suitable for making oil tight joints, and there shall be no deleterious effects of either gaskets or oil when the gaskets are
continuously in contact with hot oil. No gaskets shall be used in which the material of the material of the gasket is mounted on a textile backing. Exterior gaskets shall be weatherproof and shall not be affected by strong sunlight.

7.11.1.5.12 **OIL**

All transformers shall be filled to the required level with new, unused, clean, standard mineral oil after treatment in compliance with IEC 60296 & BS 148.

7.11.1.5.13 **TAPINGS**

Five voltage tapings shall be provided on the primary side of each transformer and shall give: + 2×2.5%, 0, - 2×2.5% steps of the primary nominal voltage.

The tapings shall be selected by an 'off load' tapping switch with an external hand wheel with provision for looking onto a selected tapping. The switch shall have a positive action designed to eliminate the possibility of stopping in an intermediate position. The shaft shall be adequately sealed so that no seepage of oil occurs under all conditions of service.

The voltage operating positions, together with tap change positions shall be clearly and indelibly marked.

7.11.2 Cables and Accessories:

Cables of appropriate size to be used in the system shall have the following characteristics:

- Will meet IEC, BS or equivalent International Standards
- Temp. Range -10°C to +80°C.
- Voltage rating 660/1000V
- Voltage losses to be less than 3%.
- Excellent resistance to heat, cold, water, oil, abrasion and UV radiation
- Flexible insulated wiring

**Features**

a. All cables shall be PVC insulated with appropriate grade conforming to IEC or equivalent international standard.

b. Cables inside the control room shall be laid in suitable cable trays of approved type.

c. All wires used on the LT side should be appropriate voltage grade.

d. Cable terminations shall be made with suitable cable lugs & sockets etc., crimped properly and passed through brass compression type cable glands at the entry & exit point of the cubicles. The panel's bottoms should be properly sealed to prevent entry of snakes / lizard etc. inside the panel.

e. All cable/wires shall be marked with good quality letter and number ferrules of proper sizes so that the cables can be identified easily.

f. The terminal end of cables and wires are to be fitted with good quality letter and number ferrules of proper sizes so that the cables can be identified easily.

7.11.3 Balance of System:

The bidders shall include all required balance of system components in their bids.
7.11.4 Control and Protection System:

7.11.4.1 Protection and Relay System:

The Generation System, the associated Power evacuation system and the Transformer shall be protected as per relevant International Standards. Directional Over Current relays, Reverse Power Relays, Differential Protection Relays and Directional Earth Fault Relays have to be provided for Generation System. For the line protection shall be matching with the existing protection system of BREB Bagharia 33/11 kV substation. For transformer protection Directional Over Current Relay, Directional Earth Fault Relay, Differential Protection Relay and Restricted Earth Fault (REF) Relays have to be provided.

All relays shall be from any of the following manufacturer-
- Siemens (Germany/Switzerland)
- ABB(Switzerland/Sweden/Finnland)
- Schneider (UK/France).

Relays:

a. All Relays shall be draw out type conforming to all requirements as per international standard and shall be suitable for operation from CT and PT secondary as required. All Relays shall be Numerical type and conform to IEC or equivalent international standard.
b. The protective Relays, except for lock-out relays shall have self-reset contacts, and shall be suitable for efficient and reliable operation of the protective schemes.

7.11.4.2 Earthing Protection:

An earthing System generally in accordance with the requirements of IEEE 80 and BS 7430 shall be designed under this contract. Installation and supply of all materials and equipment also included. The earthing system shall also be including earth electrodes and connections to all electrical equipment and metallic structures on the site. The earth electrodes shall limit the potential rise under fault conditions and buried conductors shall be provided to limit potential differences on the site and adjacent to the site to ensure safety to people and animals. Protection of all electrical equipment against lightning shall also be provided.

LT Side:

a. The earthing for array and LT power system including Control Panels shall be required as per provisions of International Standard. Necessary provision shall be made for bolted isolating joints of each earthing pit for periodic checking of each resistance.
b. Each Array structure of the system shall be grounded properly. The array structures are to be connected to earth pits as per IEC or equivalent international standard.
c. The earthing for the power plant equipment shall be made with as per provisions of IEC or equivalent international standard. Necessary provision shall be made for bolted isolating joints of each earthing pit for periodic checking of earth resistance.
d. The earthing resistance of soil within the plant area shall be less than 0.5 ohm.
7.11.4.3 Metering System
The metering system shall be capable of obtaining and interpreting readings and performing the adjustments, if required, to comply with the pertinent information concerning Plant performance required. The system shall be part of the Plant’s control and measurement installations, provided it complies with the criteria specified below.

Accuracy
Maximum Allowable Errors

<table>
<thead>
<tr>
<th>Measured Parameter</th>
<th>Maximum Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Temperature</td>
<td>± 1°C</td>
</tr>
<tr>
<td>Ambient Relative Humidity</td>
<td>± 3%</td>
</tr>
<tr>
<td>Water Temperature (when applicable)</td>
<td>± 1°C</td>
</tr>
<tr>
<td>Net Electricity (kWh) meters</td>
<td>± 0.2%</td>
</tr>
<tr>
<td>Capacity (kW) meters</td>
<td>± 0.1%</td>
</tr>
<tr>
<td>Instrument transformers</td>
<td>± 0.2%</td>
</tr>
<tr>
<td>Time Reference</td>
<td>0.01 seconds per week-maximum</td>
</tr>
</tbody>
</table>

Technical Specifications of Programmable Tariff Meter

Technical Specifications of Programmable Tariff Meter shall be compatible with BPDB automated meter reading system.

The meter must be capable to display & record meter ID, Program, CT Ratio, PT Ratio, Total kWh, kVArh, kVAh, kW, kVar, kVA, PF, per phase (voltage, current, phase angle), load profile having minimum 16 channel storage data for minimum 90 days, Event log, power failure etc.

Two (02) meters shall be provided, one shall be at plant’s side and another one shall be at Bagharia 33/11 kV substation.

All meters shall be form any of the following manufacturer-

- Siemens (Germany/Switzerland)
- ABB(Switzerland/Finland)/ AEG(Germany)
- Itron(USA)/Elster (USA)
- Landis Gyr+ (Switzerland).

7.12 Line Construction:
The contractor shall have to construct 6 km(approx.) of 11kV 3-Phase Distribution Lines from the control room up to the nearest point of the BREB’s existing Sub-station/distribution lines as per relevant international codes and standards to meet the requirements of the employer. Major equipments that have to be used to construct the line is DOG conductor, 15m SPC pole, 650daN etc.
7.13 Fire Detection & Protection Facilities:

7.13.1 General:
The Contractor shall supply necessary quantities/numbers of firefighting system to protect the Plant and all associated equipments and Outdoor yard. Fire detection and Alarm system for office building and control & equipment room shall be provided. In particular, the following shall be included:

- Dry Chemical Powder Fire Extinguishers.
- Sand Buckets
- Fire Detection and Alarm system

7.13.2 Dry Chemical Powder Fire Extinguishers:
The Dry Chemical Powder Fire Extinguisher shall be Upright type of capacity 5/10 Kg conformed to NFPA Codes and Standard. The fire extinguisher shall be suitable for fighting fire of oils, solvents, gases, paints, varnishes, electrical wiring, live machinery fires, all flammable liquid & gas.

7.13.3 Sand Buckets:
The bucket should be wall mounted made from at least 24 SWG sheet with bracket fixing on wall conforming to NFPA Codes and Standard.

7.14 Communication Facilities:

7.14.1 General:
The Contractor shall design, manufacture, delivery to the site and install Communication and Security System.

7.15 Others:

7.15.1 Efforts to increase the efficiency:
The contractor shall take efforts to make the system more efficient by adopting methods like adjustment of pitch angle. Power factor improvement reducing reactive power consumption use of right grade of lubricants etc.

7.15.2 Tools and Tackles:
The contractors shall arrange for all the necessary tools and tackles including crane/suitable similar systems for carrying out all the maintenance work covered under this contract.

7.15.3 Accidents:
BPDB will not have any liability towards any loss or damage to the property or personal of the contractors deployed for discharging the work under this contract.

7.15.4 Confidentiality:
All data recorded /taken from the waste to energy system will be proprietary item of BPDB and shall not be part to any person /agencies without written consent from BPDB.
7.15.5 **Security services:**

The contractor has to arrange proper security system including deputation of security personnel at his own cost for the waste to energy plant during the complete O&M period of 4 years. The security staff may be organized to work on suitable shift system, proper checking & recording of all incoming & outgoing material vehicle shall be maintained. Any occurrence of unlawful activities shall be informed to BPDB immediately, a monthly report shall be sent to BPDB on the security aspects.

7.15.6 **Organization chart:**

The bidder shall furnish an organization chart for the proposed O&M period. The periodic person responsible for reposting to BPDB shall be indicated by designation.

7.15.7 **Warranty for supply of goods:**

The warranty period for the supplied goods shall be 24 months starting from the date of official commissioning of 1 ± 10% MW waste to energy power plant at Keraniganj. The Manufacturer shall warranty that the spares to be supplied under this contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the contract.

7.16 **Civil and Building Works:**

7.16.1 **General:**

The General Conditions, Tender Drawings, relevant Specifications of materials and workmanship described elsewhere in this Documents, Schedule of Rates shall be read in conjunction with this Specification. On the other hand, Local Code of Practice shall be followed where not mentioned.

7.16.2 **Scope of the Civil and Building Works:**

7.16.2.1 **General:**

The civil works shall include collection of site data, detailed design, production of working drawings, provision of labour, supply of construction plant and materials, construction and rectification of defects during the Warranty Period of the Works. Moreover, during design, construction and operation phases, all works and activities of this project should be followed by health, safety and environmental practice according to international standards and guidelines.

7.16.2.2 **Topographical Survey:**

The Contractor shall carry out surveys as necessary for the proper design and execution of the Works. The results of such additional surveys together with the survey drawings shall be submitted to the employer for approval. Based on the survey work, a general layout drawing with clear demarcation showing Boundary Pillars, location of Control Room, Array Yard, Approach Road and General Drainage etc. has to be prepared.
7.16.7.3 Soil Test:

To ascertain Soil Parameters of the proposed site for construction of Control Room & Office building & Array Yard, the Contractor shall carry out Sub Soil Investigation through certified soil consultant. These reports shall be furnished to employer. The scope of sub soil investigation covers: execution of complete soil exploration including boring, drilling, collection of undisturbed soil sample wherever possible, otherwise disturbed soil samples, conducting laboratory test of samples to find out the various parameters mainly related to load bearing capacity, ground water level, settlement and sub soil condition and submission of detail reports with recommendation regarding suitable type of foundation for each bore hole along with recommendation for soil improvement wherever necessary.

7.16.7.4 Planning and Designing:

a. The Bidder has to plan and design the Plant Yard, Approach road, Control Room & office building as per international standard. The bidder has to develop general layout drawing of Plant Array Yard, Double pole Structure, Control Room, Internal Road & Drainage, water supply (ensuring no water logging in the Power Plant Compound) along with Sanitary plumbing layout etc. All Design & drawings has to be developed based on specification given in the tender, soil report and relevant international standard unless otherwise specified. All details related to internal electrification, water supply and sewerage system should be clearly shown in the drawings. The work also includes landscaping of the entire Plant Array Yard & Control room area.

b. Design should be developed considering optimal usage of space, material and labour without compromising the effect of shadow, cooling, ventilation, accessibility etc. The design of Control Room Building shall also incorporate the outlet openings for ventilation.

c. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The Contractor shall submit five sets of final drawings for formal approval to proceed with construction work.

d. The building shall be with concrete construction in compliance with Bangladesh National Building Code (BNBC) and relevant international standards.

e. The design of landscaping, Sign boards, Building services i.e Ventilation, Lighting, Air condition and Electrical allied installations shall be adhered to BNBC.

f. The design of firefighting system shall be comply with the BNBC Codes.

7.16.7.5 Site Development:

Landscaping work of the entire area of the plant premises shall have to be done as per drawing developed by the Contractor and as per approval. All proper attention must be given to the drainage and water runoff.

The scope includes the followings:

- Land filling (pile foundation may require) above 9m from MSL, Construction of Retaining wall with adequate foundation, Construction of boundary wall of 10 acres of land.
- Site grading, leveling and consolidation of the area pertaining to the installation of Waste to energy power plant.
• Embedment of structures suitable for Waste to Energy system on ground.
• Laying of earthing equipment/structures and connecting to the main ground mat as per the statutory requirements.
• Cutting of cable trenches wherever necessary.
• Providing foundation for electrical equipment, structures etc.

7.16.7.8 Control Room & Rest-Room of the Waste to Energy Power Plant:

The control room cum rest-room (2 storied building) shall have to be designed based on topological survey report & soil testing report, relevant BDS code, Bangladesh National Building Code (BNBC), unless otherwise mentioned in the general scope of work & technical specification in consultation with Director. All kind of Construction work the tenderer shall follow the appropriate international standards.

• Control room cum rest-room of innovative and appropriate design with at least 400m² (or suitable higher size required) for accommodating control panels, rest-room etc and additional room/cabin/space for accommodating operating personnel, storage of spares, etc with a height of 5 meter shall be constructed. The bidder has to submit the proposed drawing of control room building along with the bid to the employer for approval.

• Control room cum rest room building shall be equipped with Toilets, Washbasin, and Overhead tank for water storage with proper fresh water and sewage arrangement and septic tank has to be provided. Relevant standards have to be maintained for construction. The bidder has to submit the proposed drawing of control room building along with the bid to the owner for approval. The building shall be designed to meet national building code requirement. The control Room shall be provided with suitable smoke detectors and the entrance of the control room shall have ramp arrangement for the entry of goods and the necessary cable to be brought through cable tray arrangements. All the cable trays shall be provided with shock proof rubber mats.

7.16.7.9 RCC Work:

All RCC works shall be M 20 grade concrete design mix as per BDS or equivalent international standard and the materials used viz. Cement reinforcement, steel etc. shall be as per relevant BDS or equivalent international standards. In addition, international Codes of Practice for Bending and Fixing of Bars for concrete Reinforcement must be complied. Reinforcement shall be high strength TMT Fe 415 or Fe 500 conforming to suitable standard. Cement grade OPC 43 grade shall have to be considered.

7.16.7.10 Masonry Work:

All brick works shall be using first class bricks of approved quality as per relevant standard. The cement mortar for brick masonry shall be in the ratio 1 cement and 5 sand by weight. The cement mortar shall be machine mixed. Bricks required for masonry work shall be thoroughly soaked in clean water tank for approximately two hours. Brick shall be laid in English bond style. Green masonry work shall be protected from rain. Masonry work shall be kept moist on all the faces for a period of seven days.
7.16.7.11 Doors & Windows:

Doors, windows and ventilators of air-conditioned areas, entrance lobby of all buildings (where ever provided), and all windows and ventilators of main plant and service building shall have, electro color dyed (anodized with 15 micron coating thickness) aluminum framework with glazing. All other buildings doors, windows and ventilators (unless otherwise specified) shall be of steel. The doors frames shall be fabricated from 1.6 mm thick MS sheets and shall meet the general requirements of relevant standard. Steel windows and ventilators shall be as per standard. All windows and ventilators on ground floor of all buildings shall be provided with suitable grill. Minimum size of door provided shall be 2.1 m high and 1.2 m wide. The structural steel shall conform to relevant international standard. The fixtures, fastenings and door latch are to be made with same materials. Each window unit shall have a solid bronze polished, cam locking handle and strike. Fixing of metallic doors and windows shall be done in accordance to relevant Standards. Doors and windows on external walls of the buildings shall be provided with RCC sunshade over the openings with 300 mm projection on either side of the openings. Projection of sunshade from the wall shall be minimum 450 mm over window openings and 750 mm over door openings except for main entrance door to the control room where the projection shall be 1500mm.

7.16.7.12 Glazing:

All accessible ventilators and windows of all buildings shall be provided with min. 4mm thick float glass, plain or tinted for preventing solar radiations, unless otherwise specified. For single glazed aluminum partitions and doors, float glass of 8mm or 10 mm thickness shall be used. All glazing work shall conform to relevant International Standards. The glass should be free from distortion and thermal stress.

7.16.7.13 Plastering:

All external surfaces shall have 20 mm cement plaster in two coats, under layer 16 mm thick cement plaster 1:4 and finished with a top layer 4 mm thick cement plaster 1:3 with water proofing compound. White cement primer shall be used as per manufacturer’s recommendation. At least one coat of plaster shall be applied to interior walls by hand or mechanically, to a total thickness of 12 mm using 1:4, 1 cement and 4 sand. Plastering shall comply with relevant Standards. Oil bound washable distemper on smooth surface applied with 2 mm thick Plaster of Paris putty for control room. Plaster of Paris (Gypsum Anhydrous) conforming to proper standard shall be used for plaster of Paris punning.

7.16.7.14 Flooring:

The Cement shall be ordinary Portland cement conformed to relevant International Standards. Base concrete for flooring with a bed of 100 mm thick in CC 1:4:8 using graded concrete of 40mm nominal size HBG metal. For pantry slab and control room floor mirror polished (6 layers of polish) Granite stone (slab) of minimum thickness of 18 mm shall be used.

7.16.7.15 Foundations:

CC (1:4:8) using graded aggregate of 40mm nominal size HBG metal shall be laid as leveling course under footings. The CC work shall be executed as per the latest codes and standards. Major portion of the site is filled up area which contains majority of boulders with soil muck. Necessary foundation treatment like sand sluice
treatment shall be taken and all foundations of structures shall be suitably designed considering the condition of present site strata.

7.16.7.16 Roofing:

Roof of the C.R. Building shall consist of Cast-in-situ RCC slab treated with a water proofing system which shall be an integral cement based treatment conforming to CPWD specification. The roof of the building shall be water proof with tar felt 5 layer over screening. The roof shall be designed for minimum superimposed load to 150 kg/m2. For efficient disposal of rainwater, the runoff gradient for the roof shall not be less than 1:100 and the roof shall be provided with RCC water gutter, wherever required. Gutter shall be made water tight using suitable watertight treatment. This gradient can be provided either in structure or subsequently by screed concrete 1:2:4 (using 12.5 mm coarse aggregate) and/or cement mortar (1:4). However, minimum 25 mm thick cement mortar (1:4) shall be provided on top to achieve smooth surface.

7.16.7.17 Paintings of Walls & Ceilings:

The paint shall be anti-fungal quality of reputed brand suitable for masonry surfaces for high rainfall zone. All painting on masonry or concrete surface shall preferably be applied by roller. If applied by brush then same shall be finished off with roller. For painting on concrete, masonry and plastered surface suitable standard shall be followed. All paints shall be of approved make including chemical resistant paint. Minimum 2 finishing coats of paint shall be applied over a coat of primer.

For painting on steel work and ferrous metals relevant Standards shall be followed. The type of surface preparation, thickness and type of primer, intermediate and finishing paint shall be according to the painting system adopted. The cement paint of suitable standard shall be of approved brand and manufacturer. Ceiling of all rooms except Battery room shall be white washed. The ceiling of Battery room (if provided) shall be acid resistant paint.

7.16.7.18 Plinth Protection:

Plinth protection shall be provided around all the buildings with Brickbats and PCC 1:2:4 & smoothly finish of top surface.

7.16.7.19 Plumbing & Sanitary:

The whole of the plumbing works in the buildings shall be provided in accordance with the relevant bylaws and to the complete satisfaction of the Engineer. Pipes shall be connected to each point where water is required, with a minimum head of 2 metres at all outlets.

All cast iron pipe works and fittings as are necessary for the complete installation of the sanitary system shall be supplied and installed in accordance with the requirement of the local authorities and other standards approved by the Engineer.

7.16.7.20 Stairs:

Bidder shall have to provide service ladder made up steel to access the roof for maintenance of communication equipment and water tank.
7.16.7.21 Waste Transfer Station

A station from where EPC contractor shall collect Municipal Solid Waste (MSW) to proposed Waste to Energy Power Plant. EPC contractor shall build 3 (three) Waste Transfer Station (WTS) having an area of 243m² including a 25m² administrative building inside the WTS for each transfer station. Each Waste Transfer Station shall have a shed to protect from rain and storm and Keraniganj Upazila Parishad will supply necessary MSW to each Waste Transfer Station in accordance with the requirement of plant.

EPC contractor shall notify BPDB 90 days prior to the Scheduled Commissioning Start Date to supply Municipal Solid Waste to Waste Transfer Station mentioning the waste require for each day following the Scheduled Commissioning Start Date for the next 60 days. The required quantity of waste may not exceed 60 mt in any day.

7.17 Supply of International Codes and Standards:

If necessary and required/instructed by the purchaser, the Tenderer shall supply copy of all relevant international standards (ISO, IEC, ASTM, IEEE, ASME, NFPA etc.).
  - ISO for Testing and Commissioning
  - IEC/IEEE for Electrical Equipment

7.18 Documentation:
7.18.1 Language

All documents, correspondence and submissions shall be in the English Language.

7.18.2 Control

The Contractor shall, for all work to be performed under the Contract, establish and maintain a comprehensive computer-based document control system ensuring that, at all phases of the work the identification, revision, status and location of documentation is determined. The Contractor's system shall also provide for all subcontractors' and Bidders' documents.

At the end of each reporting period the Contractor shall provide to the Employer a complete hard and electronic record and electronic copies of all drawings, submissions, documents and correspondence delivered in both hard and electronic form during that reporting period.

7.18.3 Identification

The Contractor shall develop and maintain an identification system for all project documentation for permanent inclusion in the Works which shall enable the Contractor to control the documentation in the live phase of the project and enable the Employer fully, efficiently and to the standards required by the Contract, operate the Plant by providing ready access to the system. The Contractor shall therefore develop a method to identify documents to their specific process/pressurized system and any interfaces appertaining thereto. This philosophy shall be maintained in the assembly of the required Engineering, Plant Operations, Maintenance, spares and Quality Records.

The Contractor's adopted computer based system shall be transferable to standard personal computers (IBM compatible) and transferred to the Employer at the completion of the Works as part of the documentation handover.
Provision shall be made by the Contractor to provide full training in the use of the identification system by the Plant operator in readiness for handover of the system.

7.18.4 Organization of Documentation

All documentation shall be organized in a logical manner and all contents shall be properly indexed.

A revision status record sheet at the front of each document shall facilitate recording of amendments in a logical manner. Revision indication and issue dates shall also appear on each amended sheet. All submissions, except drawings, shall be housed in durable loose-leaf folders suitable for the addition of amendment data. The cover shall identify the contents, and carry the Contract reference number.

7.18.5 Quantity

Four hard copies and one soft copy of all documents and drawings shall be provided at all stages of the Contract. Document distribution will be advised.

7.18.6 Quality

Paper used for documentation shall be suitable for long term storage (minimum 80 g/m²). All drawings shall comply with the relevant standards.

All drawings shall be stored in electronic format in AutoCAD.

7.18.7 Size

With the exception of drawings and certain other forms such as certificates, all other documents shall be size A4. The maximum sheet size for drawings shall be size A1. Documents sized A0 are not acceptable.

Except in instances where the original drawing is size A4, drawings for inclusion for technical manuals should be size A3, double folded to size A4, title visible with the drawing folded and bound along the left-hand side. If drawings of size larger than A3 are required to facilitate clarity they shall be folded and placed into plastic wallets, with each wallet clearly identifying the enclosed drawing. The wallets shall be secured in the manual cover and permit easy access to the enclosed drawing.

All documents greater than size A3 must be capable of reduction to size A3 with no loss of symbol, and lettering legibility, etc. Such drawings shall also have a minimum left-hand margin of 25 mm at size A3 to ensure that no information is obscured by binding.

The Contractor shall provide electronically versions of all bidder documentation and drawings.

7.18.8 Symbols

Symbols shall comply with relevant international standards for Construction Drawing Practice Graphical Symbols for General Engineering and Electrical Power, Telecommunications and Electronics Diagrams. This includes, but is not limited to:

7.18.9 Units and Scale Ratios

All drawings shall be supplied in SI metric units using one of the following scales 1:1, 1:2, 1:5, 1:10, 1:25, 1:50, 1:100, 1:200, 1:500, 1:1,000, or 2,500. Third angle projection shall be used throughout. All drawings shall be provided with a scale bar.
7.18.10 Documentation Schedule
The Contractor shall provide a detailed schedule of documents to be produced during the Contract in accordance with the Document Schedule for submission to the Employer. The schedule shall indicate, by generic type, those supplied for review and comment (specifications, procedures, etc) and those for information. Typical documentation to be provided shall include, but not be limited to, the following:
- Copy of topographical and soil investigation results and interpretation
- List of design codes to be followed (include with Tender)
- Detail of all loadings, both actual and assumed, incorporated into the designs. Where an interpretation of codes of practice is necessary, e.g. for seismic loading, the assessment and conclusion shall be clearly stated
- Material data to include strength of materials and source of manufacture of all structural elements (include details with Tender)
- Calculations for all structural, civil, and building work
- Drawings
- Manufacturer's test certificates.

The schedule of documentation shall also indicate to the Employer those specific design, safety and related elements required for third party verification and, where possible, the proposed third party.

The sequence of submission of all drawings and calculations shall be such that all information required for review shall be available. A letter of transmittal shall accompany each submittal.

The Contractor shall allow at least twenty one calendar days, plus appropriate transit time, for each review by the Employer unless otherwise stated in the Contract.

Review of, comments on, approval of, or expression of satisfaction with the Contractor's drawings or calculations by the Employer shall not relieve the Contractor of any of its obligations to meet all the requirements of the Contract or relieve the Contractor of the responsibility for the correctness of such drawings. The Contractor shall make any changes that are necessary to make the work conform to the provisions and intent of the Contract.

7.18.11 Construction Procurement Records
The Contractor shall generate records as required by the Contract and the Quality Requirements, Quality Procedure and Quality Plan.

All records, including those generated by subcontractors or suppliers, shall be concisely compiled, indexed and uniquely identified with the Contract reference number and where relevant, subcontract or order numbers. They shall be clearly identifiable to the individual parts and assemblies to which they refer.

The Contractor shall ensure that all Site and Works documentation is maintained and stored in accordance with the Quality Requirements, the Quality Procedures and the Quality Plan.

For items of Plant or equipment that are being delivered to Site, the Contractor shall ensure that all records required by the Employer pertaining to such equipment arrive on Site with the plant or equipment. Such records shall include reports and certification in respect of, for example, pressure containing components together with all traceability records.

The compilation and storage of records during the Contract shall be controlled to ensure adequate security, verification and traceability prior to Taking Over. The storage conditions shall provide resistance to damage and deterioration.
Copies of all records generated during the course of the Contract by the Contractor, its subcontractors and suppliers shall be retained by the Contractor for a minimum period of ten years.

These records shall be made available to the Employer on request. Before final disposal by the Contractor at the end of this period, these records shall be offered at no cost to the Employer.

The Contractor shall submit a monthly Drawing and Documentation Schedule for review by the Employer and shall maintain the schedule throughout the Contract to show the up-to-date status and revision of each document. The transfer of this information should be achieved by electronic transfer (disk) from the Contractor’s Central System.

The Contractor shall submit documents for review by the Employer in accordance with the Documentation Schedule and the Quality Requirements, Quality Procedures and Quality Programme. Review of, comments on, approval of, or expression of satisfaction with any drawing, document or the Drawing Documentation Schedule by the Employer shall not relieve the Contractor of any of its obligations under the Contract.

Prior to Taking Over, final documentation shall be handed over to the Employer in such numbers and formats as is laid down elsewhere in the Contract.

7.18.12 Erection Procedure

The Contractor shall submit copies of the erection procedure for all Plant, equipment and systems to the Employer for information prior to such erection being carried out on the Site.

7.18.13 Pre-Commissioning Procedures

The Contractor shall prepare detailed stand-alone pre-commissioning procedures necessary to cover mechanical and electrical completion, testing and pre-commissioning of equipment and systems to a state of readiness for start-up and operation in accordance with the procedures, test details and criteria contained in the Conditions of Contract and the Technical Specifications. The Contractor shall review equipment systems and provide for specialist bidder personnel to assist as required.

Pre-commissioning shall be carried out on a system by system basis. The Contractor shall, in accordance with the procedures, test details and criteria referred to above, prepare a separate procedure for each system to be pre-commissioned, bound in an A4 size file. It is important that where Contractor packages/equipment pre-commissioning procedures are written that all relevant Contractor drawings and documentation are included in the relevant procedure file. Each system pre-commissioning procedure shall contain:

- Title and system number to which the procedure refers
- Index
- Status/approval signature sheet
- Equipment test record sheets including pre-commissioning test records.

The Contractor shall submit each system commissioning procedures and all documentation for review by the Employer not later than three months before the commencement of pre-commissioning of that system. Each system pre-commissioning procedure shall contain all correction curves and tables necessary for the pre-commissioning and testing of that system.
7.18.14 Commissioning

The Contractor shall submit copies of the Procedure for Commissioning to the Employer for review not later than one month prior to the Commissioning.

7.18.15 Timing of Final Documentation

All final documentation, not limited to those documents described below, shall be delivered to the Employer in its final version not later than 90 days after Taking Over of the Works.

7.18.16 Quality and Format

All final documentation which shall be used or referred to by the Employer's operation and maintenance staff shall be in the English language.

The Contractor shall submit to the Employer, all drawings in master hard copy format and electronic format. All scripted documents, A4 manuals, etc shall be provided in hard copy format from the master and electronic format.

All documents produced specifically for the project shall be in Microsoft Office 2007 format, i.e. Word, Excel and Access. Drawings shall be produced using AutoCAD 2009.

Standard and reference documents not already available in electronic format shall be converted to rasterized computer files in a standard world-wide compatible format.

7.18.17 Storage at Site

The masters in electronic format of all data shall be submitted to the Employer in CD ROM read/writable format.

7.18.18 Hand-over

The Contractor shall progressively pass to the Employer final documentation for the Works in accordance with the Documentation Schedule.

7.18.19 Types of Manuals

The Contractor shall provide the manuals listed below in accordance with the Conditions of Contract.

The format of the data included shall be of two specific types; those documents that apply to the construction and commissioning activities for a single system, e.g. materials, tests, inspections, etc., and those not system specific, i.e. welder certificates and procedures. The Contractor shall therefore produce the manual in distinct parts per system or generic type.

For all system related documents the Contractor shall include a system/book index for the total submissions and inclusion within all volumes.

Commissioning Manual:

This manual shall be developed from the individual plant items and assembled by system in accordance with the plant start-up/shutdown maintenance and operational philosophy.

The manual shall include the agreed commissioning procedures within the appropriate sections. The manual shall be accurately indexed to facilitate retrieval of information by plant system in accordance with the operational philosophy.
Spare Parts Manual:
A separate volume, cross-referenced to all tagged items of equipment, detailing the spares recommended by the Contractor for commissioning, operation and insurance purposes. This manual shall also include a schedule of required lubricants and any special requirements relating to the handling and storage and disposal thereof.

Operations Manual:
A fully descriptive manual of the functions and logic used in all aspects of the operation of the plant, including all safety features. It shall also include a description of the various modes of operation.

Operating and Maintenance Manual:
To contain full and explicit instructions in respect of the methods for operating the plant in all conditions of operation and the routines to be established to maintain the plant for optimum performance.

This manual shall be divided by process, utility, power or other systems, as appropriate, into individual sections. All sections shall be clearly indexed and sub-sectioned as necessary.

The details contained therein shall be derived from the design, Contractors’ and commissioning data without need to cross-reference to other documents i.e. stand alone. The sole inclusion of standard Contractors’ published material shall not be accepted.

All sections shall contain an introductory description of the particular item/system including its function, operational criteria and any special features appertaining thereto.

Each section shall contain a sub-section entitled Safety which shall contain all standard and special safety precautions for operating and during maintenance of the system.

In addition to the other copies four copies of this manual shall be presented in durable plastic or plasticized card to enable use at the workface. These copies shall further have the ability to be cleaned by a water/soap solution without deterioration or loss of clarity.

The timing of submission of all of the above manuals by the Contractor shall be in accordance with the Documentation Schedule.

7.19 Implementation Schedules

7.19.1 General

After Bids close that will be evaluated and followed by contract negotiations with the lowest ranked compliant Bidder.

7.19.2 EPC Contract Schedule

The EPC contract duration shall be not more than 540 days for waste to energy Power plant.

7.20 Progress Reports

7.20.1 Progress Measurement

The Contractor shall, for the duration of the Contract Period, develop and maintain systems and procedures for the measurement of progress against the Contractor’s Programme and Document Schedule.
Progress achieved shall be measured concurrently at all Work locations. Unless otherwise stipulated in the Contract the measurement cut-off date shall be the last Friday of each calendar month.

Progress measurement at the Site shall be carried out on a weekly basis.

Prior to the formal issue of progress statistics to the Employer, the Contractor shall establish within its own organization the accuracy of the monthly measure.

Detailed risk analysis shall be carried out on the programme and submitted to the Employer on a monthly basis.

7.20.2 Progress Reporting

The Contractor shall submit to the Employer a detailed progress report for each month up to the cutoff date. The monthly report shall contain, but not be limited to, the following:

- Listing of activities more than two weeks late
- Listing of all items on the critical path and next sub critical path
- Explanations for late activities which are having, or are likely to have, impact on the project schedule
- Details of measures proposed to bring late activities back on schedule
- Outstanding interface data and measures proposed to expedite the issue of critical interface data
- Confirmation of the achievement of near term milestones
- Confirmation of the achievement of the completion date
- Detailed risk analysis of the programme.

In addition to the activities referred to above the monthly progress report shall also include, but not be limited to, the following:

- Covering letter and executive summary
- Details of any accident or injuries during the reporting period and overall accident, safety and injury statistics for the construction phase, in the reporting period and to date. Management report on, and status of compliance with, the Health and Safety Plan
- Management report on, and status of compliance with, the Environmental Management Plan
- Details of any industrial relations issues
- Details of any complaints or comments made by external bodies or individuals
- Problem areas (and details of measures being taken to resolve problems)
- A statement of the number of site personnel engaged in the work during the reporting period and, where relevant, details of erection equipment in use or held in readiness
- Document Index marked up to show document status
- Purchasing schedule marked up to show status of procurement activities
- Copies of those inspection and test reports which identify any deviations from the quality standards in the Contract and a statement of corrective actions
- A Schedule of all other inspections and tests performed
• Copies of quality assurance audit reports which identify the need of corrective actions and evidence of the implementation of corrective actions
• Progress on compilation of manuals
• Colour photographs showing the progress of construction

The Project Master Schedule shall be marked up, on a monthly basis, by the Contractor to indicate the progress achieved against each activity and submitted as part of the monthly progress report which shall be issued to the Employer within 10 working days after the cut-off date (one week prior to the monthly progress meeting).

The progress curves developed from the Project Master Schedule shall include planned and actual progress status. The progress curves shall be produced using the man hour content of the network activities factored to achieve a percentage weighting for each activity. The weightings, once agreed, shall not be varied during the course of the Project unless otherwise agreed by the Employer.

The progress report, six copies of which shall be provided, shall address each of the following project phases, as appropriate:
• Engineering
• Procurement
• Expediting
• Inspection
• Manufacturer and fabrication
• Construction and erection
• Testing and pre-commissioning
• Commissioning
• Reliability testing, performance testing and taking over.

7.21 Photographs

Twelve colour photographs showing progress on site shall be provided with each monthly report. Each photograph shall not be less than 240 mm by 180 mm and shall carry description, serial number and dates.

Soft copies in jpg format of all photographs shall be handed over to the Employer at the completion of the Contract at which time the Contractor shall also hand over three sets of photographs in separate albums.

In addition to still photographs, the Contractor shall provide four digital videos taken at key dates during the construction programme. Two copies of each video file on a DVD shall be provided to the Employer.

7.22 Data for Asset Management System

The Employer is purchasing an asset management system under another contract. In addition to the above documentation, the Contractor shall provide on DVDs (four sets), electronic versions/copies of the following key plant reference documents:
• Plant Equipment List
• Equipment Name Plate Data
• Plant Spare Parts and Inventory List
• Equipment Operations Manuals
• Equipment Maintenance Manuals and Bill of Materials
• Plant System Design and As-Built Drawings (AutoCAD)
• Plant System Design Specifications
7.23 Training

7.23.1 General

The Contractor shall provide formal comprehensive local training at project site for the duration of 90 (ninety) days for operation and maintenance including the design, operation, configuration and maintenance of all Equipment and systems of the Project designed and supplied by the Contractor. The number of such person shall be 10 (ten). The training shall consist of both classroom training and on job site training.

Besides the local training the contractor shall also provide foreign training at manufacturer premises for the duration of 30 (thirty) days for operation and maintenance, planning and designing of waste to energy power plant. The number of such person shall be 16 (sixteen). The training shall consist of both classroom training and on the manufacturing plant training.

The formal training classes shall be conducted by experienced instructors on equipment identical to that installed, using materials (including video presentation) prepared by the Contractor that have been specifically prepared for this Contract.

Each trainee shall receive a full set of all materials used in the classroom as personal equipment to be used by the trainee. Six additional sets shall be provided. One master copy on DVD of all the training material (including slides, videos and other instructor's material) shall also be provided.

Training certificates shall be issued by the Contractor to trainees who pass the final test and are allowed to operate the new plant with a high level of confidence. If necessary, remedial classes shall be conducted for trainees that fail the final test.

Training material and class tuition shall be in English.

The training programme shall be structured and shall:

- Provide all the knowledge and skills required to perform the required operation and maintenance activities
- Demonstrate that each trainee has acquired the necessary skills and knowledge
- Document that the Contractor has tested each trainee to the required level and qualified the trainee to operate or maintain the Plant.
- Issue certificates of competency for various components; e.g. ICMS System.

The objectives of the programme shall be to maximize learning and minimize maintenance and operational errors.

The Contractor shall submit, within four months of the Contract Effective date, a detailed training plan including scope and timing for review by the Employer. The Contractor shall submit, two months prior to the start of each classroom lesson, a Course Description and Lesson Plan for review by the Employer.

The training programme shall be coordinated with pre-commissioning and commissioning so that the operation and maintenance staff use and consolidate their training by assisting the Contractor in the pre-commissioning and commissioning phases under the direction of the Contractor.

The Contractor shall provide all the materials, training aids, venue and all facilities required for the training.
7.23.2 Training Work Scope

The training shall include but not be limited to:
- Design & Planning of Waste to Energy Power System
- Calculation and Selection of different components
- Testing & Commissioning of the System
- Waste management system
- Standards of (a) Combined Heat and Power Unit (b) Plant’s auxiliary system, (c) Fermentation system (d) Bio Filter (e) Drying Container (Compost chamber) (f) PLC System of the Plant, (g) Trommel Screen/Rotary Screen (h) Feed Hopper with D ecompactor etc
- Construction Methodology
- Safety in Hazardous Areas
- Fire Fighting system.
- Protection system
- Operation and Maintenance of Waste to Energy Power System

Each of the above items can be split into several modules.

7.24 DOCUMENT FOR BASIC EQUIPMENT/EXPERIENCE AND OTHERS

The following Commercial, Technical Documents and Information shall be submitted with the offer for "Design, supply, construction, testing & commissioning of municipal solid waste to 1 ± 10% MW energy conversion pilot project at Keraniganj on turnkey basis" otherwise the bid will be rejected:

A. Commercial

Tenderer shall be eligible as per ITT Clause No.15.1 (a), 15.1 (b) and 24 and they should submit Bid validity, Bid Bond, Bid Bond validity, Price Schedule, Delivery Schedule, Authorization of the signatory, Tender Submission Sheet, Tenderer Information Sheet & Documentary evidence for establishing the Tenderer’s Qualifications, etc. and all other documents including information related to rejection clause as per Tender Document.

B. Technical

a) General experience of the Tenderer in the construction works as Prime Contractor or Subcontractor or Management Contractor as described in ITT 14.1 (a)

b) Specific Experience for Prime Contractor/JVCA partner/Subcontractor as described in ITT 14.1 (b).

c) Guaranteed Technical Particulars (GTP) shall be properly filled up with submission of related supporting documents and signed by both Manufacturer and Tenderer.

d) Letter of authorization from the Manufacturers, in case, the bidder is not the manufacturer, in prescribed Form (PW3-12).

e) Minimum 2(Two) nos. of Manufacturer’s Supply record for similar or higher rating of offered (i) Feed Hopper with De-compactor (ii) Combined Heat and Power Unit (iii) Trommel Screen/Rotary Screen of the plant within the last 5 (five) years from the date of tender opening in the following format (the supply record covering at least 100% of the total offered amount/tendered quantity in single contract will be considered only):

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name, Address, Phone, e-mail &amp; Fax No. of the Consumer</th>
<th>Contract No. &amp; Date</th>
<th>Contract Value</th>
<th>Description of Materials with Quantity</th>
<th>Date of Completion of Supply</th>
</tr>
</thead>
</table>

158
f) Satisfactory Performance Certificate (SPC) of the following equipment from the end user depicting that the equipment is operating satisfactorily for at least 2 (two) years:

- Offered Combined Heat and Power unit (CHP)
- Offered Feed Hopper with De-compactor
- Offered Trommel Screen/ Rotary Screen.

The Satisfactory Performance Certificate (SPC) should be in end user’s letterhead pad in English stating at least 02 (two) years of satisfactory operation from the date of commissioning of the said equipment and shall contain end-user’s full mailing address, e-mail address, website address, fax number and phone number for the convenience of authentication.

f) Outline and General Arrangement drawings of the offered plant.

g) Manufacturer’s Printed Catalogue describing specification and technical data for crucial components (i.e. Combined Heat and Power Unit, Feed Hopper with Decompressor, Trommel Screen/Rotary Screen, Truck Scale/Weighbridge) of offered type Plant.

h) Submission of Type Test Report for Power Transformer as per relevant IEC Standards.

7.25 APPROVAL OF DRAWINGS AND SPECIFICATIONS AND TESTS WITNESS:

A. APPROVAL OF DRAWINGS AND SPECIFICATIONS:

CONTRACTOR’S DRAWINGS

SHOP DRAWINGS

Engineering data covering the manufacture of all equipment and fabricated materials specified hereunder shall be submitted to the Engineer for approval. These data shall include drawings and descriptive material in sufficient detail to show the type, size, arrangement, operation of component, materials, devices, the external connections, anchorage’s, supports required and any dimensions necessary for installation and co-ordination with related equipment.

WORKING DRAWINGS

The Contract drawings shall show the arrangement, layout, existing equipment, method of control and the design of the, completion of power plant addition as specified herein.

1) The Contractor shall submit for approval checked arrangement and detailed drawings of all parts, schematic and wiring diagrams and description of equipment to demonstrate that the equipment to be furnished will conform to the requirements and intent of the Specifications.

2) The Contractor shall submit installation drawings for approval including embedded Piping, piping details, support for pipings, conduits and fittings, cable laying, cable rack fixing and other detailed drawings for installation work.
FOUNDATION DESIGN

The Contractor shall be responsible for the proper design of the equipment foundations to withstand the dynamic load and static load of major equipments and Wind Turbine etc. Location and arrangement of steel reinforcement, concrete keyways and detailed drawings showing additional concrete required shall be prepared by the Contractor.

B. TESTS WITNESS:

BPDB's Inspection Team comprising of 5 (five) BPDB Engineers/officials, nominated by the Purchaser will witness the test of Waste Collection Vehicle (Rear Loader), Wheel Loader, Truck Scale/Weighbridge, Combined heat and power unit, PLC System, Feed hopper with Decompressor, Trommel Screen/Rotary Screen, Power Transformer, Metering and Protection Panel and other major equipments for 7 (seven) days at the manufacturer's plant before shipment.

Tests shall be performed in accordance with the relevant international standards or equivalent and shall be complied with offered Guaranteed Technical Particulars and specifications of the Contract. All costs of such visit including pocket allowances of USD 100/day/person will be borne by the contractor.

Tests of the following items but not least:

Transformer:
The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises. The Purchaser or its representative may inspect the goods during the manufacturing process and shall also request for the purchase/import/shipping documents of copper, oil and transformer core material and shall check in accordance with Guaranteed Technical Particulars (GTP).

An inspection team nominated by BPDB will witness the Factory test at the manufacturer's plant. The Manufacturer shall have facilities to carryout all tests at its premises.

Tests shall be performed in accordance with the relevant IEC & other relevant standards and as per contract shall be complied with offered technical particulars and guarantees of the contract. All expenses for such tests shall be borne by the bidder.

BPDB's Inspection Team will witness the following test during factory test in manufacturer's factory premises:

1. Measurement of turn ratio test;
2. Vector group test;
3. Measurement of winding resistance;
4. Measurement of insulation resistance;
5. Measurement of no load loss & no-load current;
6. Measurement of impedance voltage & load loss;
7. Dielectric withstands Tests;
8. Transformer oil test;
Besides BPDB's Inspection Team will perform physical test of the Transformer during factory test:

1. Transformer tank sheet thickness (top bottom & side);
2. Hot dip galvanization test as per standard BS-729 of all bolts & nuts connected with transformer tank, conservator, radiator etc.;
3. Dimension of bolted type bimetallic connector for H.T. and L.T. bushing;
4. Dimension of tanks;
5. Dimension of core dia, height and measurement of weight of active parts as per demand of BPDB's inspection team;
6. Dimension of coil, inner dia & outer dia (HT & LT) etc.
7. Checking of Creepage distance of HT/LT bushings.

Combined Heat and Power Unit

The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises.

Tests shall be performed in accordance with the relevant IEC & other relevant standards and as per contract shall be complied with offered technical particulars and guarantees of the contract.

PLC System

The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises.

Tests shall be performed in accordance with the relevant IEC & other relevant standards and as per contract offered system shall be complied with offered technical particulars and guarantees of the contract.

Dry Fermentation Box

The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time at the existing plant's premises.

Tests shall be performed in accordance with the relevant IEC & other relevant standards and as per contract offered system shall be complied with offered technical particulars and guarantees of the contract. The purchaser shall check during inspection the fermentation process for operation at thermophilic (50-55°C) temperatures or at mesophilic (37-40°C) temperatures of offered Dry Fermentation Box at existing Plant. Teams also observe the floor and wall heating system that could hold the MSW at constant temperature of 50-55°C or 37-40°C.

Feed Hopper with Decompactor

The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises.

Tests shall be performed in accordance with the relevant international standards and as per contract shall be complied with offered technical particulars and guarantees of the contract.

Trommel Screen/ Rotary Screen

The purchaser shall have the right to inspect, examine and test the materials to confirm the conformity to the specification at all reasonable time before and during manufacture at the manufacturer's premises.
Tests shall be performed in accordance with the relevant international standards and as per contract shall be complied with offered technical particulars and guarantees of the contract.

The dimension and weight must be as per the approved Technical Specifications/ Technical Guaranteed Data and Drawings.

The manufacturer shall have all testing facilities at the manufacturer's premises to carry out the tests in accordance with the relevant IEC/BS/ ANSI Standards.

The Tenderer/ Manufacturer shall submit with the bid the testing procedure & list of testing/ measuring equipment, meters etc. used for Factory test witness.

The Tenderer/ Manufacturer shall submit the valid Calibration Certificate from competent authority of the testing/ measuring equipments, meters etc. used for Factory test with the tender.

It is noted that at the time of Factory Test witness BPDB's Inspection team will check the calibration seal/ certificate of the testing/ measuring equipment, meters etc. by the competent authority. If the calibration seal/ certificate of the testing/ measuring equipment, meters etc. are not found and the calibration not done within the due date then BPDB's Inspection team will not witness the test. In that case the Bidder/ Manufacturer shall complete the calibration of the testing/ measuring equipment, meters etc. from the competent authority within a reasonable period without any delay in delivery period.

**Post landing inspection**

Post Landing Inspection shall be done after arrival of the materials/ equipment at site. The Post landing Inspection of the materials/ equipment shall be conducted by BPDB’s Inspectors or its authorized representative in the presence of the representative of the Contractor. The program of such Inspection shall be intimated to the representative of the Contractor by BPDB upon arrival of the materials/ equipment at above Power station site. “Receiving cum Inspection Report” will be prepared after Post Landing Inspection. Any defect or damage have been found at post-delivery inspection, the defective or damaged materials/ goods to be repaired/ replaced by the Bidder/ supplier at his own cost.

**C. TESTING & COMMISSIONING:**

An inspection team formed by the purchaser shall witness testing & commissioning, performance test in presence of manufacturers/supplier's representative after the completion of the installation works. The supplier shall arrange the program of such inspection. Any defect or damage have been found during the testing & commissioning, performance test; the defective materials/ goods are to be repaired/ replaced by the Bidder/ supplier at his own cost.

The purchaser's right to inspect, test (where necessary) and reject the goods after delivery/installation at the designated stores of BPDB shall in no way be limited or waived by reason of the goods having previously been inspected, tested and passed by the purchaser prior to the goods' delivery.
Section 8. Guaranteed Technical Particular
8.1 Guaranteed Technical Particulars of Waste Collection Vehicle

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Waste Collection Vehicle</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Rear Loader)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Weight (Payload)</td>
<td>Minimum 8.0 mt</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Weight (Vehicle Only)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Overall Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Overall Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Overall Height</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Turning Radius</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Capacity of Fuel Tank</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
8.2 Guaranteed Technical Particulars of Truck Scale/Weighbridge

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB's Requirement</th>
<th>Manufacturer's Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Truck Scale/Weighbridge</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Type</td>
<td>Pit Type</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gross Capacity</td>
<td>Minimum 50.0 mt</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Weighing Surface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a)</td>
<td>Length</td>
<td>Minimum 40’</td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td>Width</td>
<td>Minimum 10’</td>
<td></td>
</tr>
<tr>
<td>(c)</td>
<td>Clearance between the concrete floor and</td>
<td>Minimum 48”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the bottom of the weighbridge</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
### 8.3 (a) Guaranteed Technical Particulars of Wheel Loader

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB's Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Wheel Loader</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Weight (Payload)</td>
<td>Minimum 3.0 mt</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Weight (Vehicle Only)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Overall Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Overall Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Overall Height</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Turning Radius</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Capacity of Fuel Tank</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
### 8.3 (b) Guaranteed Technical Particulars of Wheel Loader

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Wheel Loader</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Weight (Payload)</td>
<td>Minimum 1.0 mt</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Weight (Vehicle Only)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Overall Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Overall Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Overall Height</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Turning Radius</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Capacity of Fuel Tank</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
# 8.4 Guaranteed Technical Particulars of Dry Fermentation Box

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Dry Fermentation Box</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Length</td>
<td>30.0 meter</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Width</td>
<td>7.0 meter</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Height</td>
<td>5.0 meter</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Floor Slab</td>
<td>Power Floated Finish</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Roof Slab</td>
<td>Power Floated Finish</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Operating Temperature</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Heating</td>
<td>Wall and Floor Heating</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Door Closing/Opening System</td>
<td>Hydraulic</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
8.5 Guaranteed Technical Particulars of Percolate Storage

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Percolate Storage</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Operating Temperature</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Temperature sensor</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Heating</td>
<td>Wall Heating</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fill level sensor</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Dimensions</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
### 8.6 Guaranteed Technical Particulars of Biogas Storage Unit

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Biogas Storage</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Capacity</td>
<td>Minimum 600 m³</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Withstand Pressure</td>
<td>Minimum 30mbar</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Hydraulic Safety Valve</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pressure Sensor</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Dimensions</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
8.7 Guaranteed Technical Particulars of Combined Heat and Power Unit

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB's Requirement</th>
<th>Manufacturer's Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Combined Heat and Power</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Electrical Output</td>
<td>Minimum 430kW</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Thermal Output</td>
<td>Minimum 480 kW</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Electrical Efficiency</td>
<td>Minimum 40%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Thermal Efficiency</td>
<td>Minimum 40%</td>
<td></td>
</tr>
<tr>
<td><strong>Gas engine</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Gas Engine</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Standard</td>
<td>Design, manufacturing, performance &amp; testing shall be in accordance to the IEC, BS, BDS or equivalent international standards.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Engine model</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Type</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Cylinder arrangement</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Cylinder bore (mm)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Stroke Piston (mm)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Total displacement (L)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Rated Power (kW)</td>
<td>Minimum 600kW</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rated speed (r/min)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Idle speed (r/min)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Specific Oil Consumption (g/kWh)</td>
<td>less than 1.0</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Control system</td>
<td>Automatic alarm system</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Exhaust temp. (Celsius Degree)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Water outlet temp (Celsius Degree)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Oil temp. in oil pan (Celsius Degree)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Stable speed droop (%)</td>
<td>less than 5</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Cooling method</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Lubricating method</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Cylinder number</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Ignition mode</td>
<td>Spark Ignited</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Ignition sequence</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Rotation direction</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Power output method</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Dimensions L×B×H mm×mm×mm</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Weight kg</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td><strong>Bio-Gas Alternator set</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Bio-Gas Alternator set</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Address of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Standard</td>
<td>Design, manufacturing, performance &amp; testing shall be in accordance to the IEC, BS, BDS or equivalent international standards.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Model number</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Rated power (kW)</td>
<td>Minimum 600 kW</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----</td>
<td>--------------------------------------</td>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Rated current(A)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Rated voltage(V)</td>
<td>415</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Rated power factor, $\cos\theta$</td>
<td>0.8 (lagging)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Frequency(Hz)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Starting method</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Voltage regulation</td>
<td>Automatic voltage regulation</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Governing Method</td>
<td>Electronic Governing</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Exciting method</td>
<td>Brushless</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Phase and wiring</td>
<td>Three-phase, four-Wire system</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Connecting Method between engine and generator</td>
<td>Flexible coupling</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Cooling method of water cycle</td>
<td>Open (with heat exchanger)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Dimensions (L×B×H), mm</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Weight kg</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
### 8.8 Guaranteed Technical Particulars of Drying Container (Compost Chamber)

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Drying Container (Compost Chamber)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Length</td>
<td>32.0 meter</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Width</td>
<td>7.0 meter</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Height</td>
<td>5.0 meter</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Floor Slab</td>
<td>Power Floated Finish</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Roof Slab</td>
<td>Power Floated Finish</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Air Flow System</td>
<td>Air shall be flown from bottom of the Drying Container (Compost Chamber)</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
8.9 Guaranteed Technical Particulars of Feed hopper with De-compactor

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Feed hopper with De-compactor</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Capacity</td>
<td>Minimum 70 mt/h</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Hopper Volume</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Decompressor Shaft</td>
<td>2 pcs</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Decompressor shafts Power</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Inclination</td>
<td>0˚</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Working width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Conveyor</td>
<td>Belt Conveyor</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Dimensions</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L×B×H mm×mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Total Weight (kg)</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer
Seal and Signature of the Tenderer
### 8.10 Guaranteed Technical Particulars of Trommel Screen/Rotary Screen

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB's Requirement</th>
<th>Manufacturer's Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>Trommel Screen/Rotary Screen</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Name of the Manufacturer</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Model No</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Screening Performance</td>
<td>Minimum 150 m³/h</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Thickness of screen plates</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Effective Screening Area</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Drum inclination</td>
<td>4°-5°</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Trommel Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Trommel Diameter</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Tank Volume</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>No of Fraction (Grain size)</td>
<td>Minimum 3 Nos</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Fine Grain Belt Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Fine Grain Belt Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Medium Grain Belt Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Medium Grain Belt Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Oversize Grain Belt Length</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Oversize Grain Belt Width</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Number of radial wheels</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Drive (kW)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Hopper size</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Dimensions (working position)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L×B×H mm×mm×mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Dimensions (transit position)</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L×B×H mm×mm×mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Total Weight (kg)</td>
<td>To be mentioned</td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
## 8.11 Guaranteed Technical Particulars of Power Transformer

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’S Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>0.415/11 kV, 3-Phase, 1000 kVA Power Transformer</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Manufacturer’s Name</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Country of the Origin</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Manufacturer’s Type/ Model No.</td>
<td>To be mentioned</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Installation</td>
<td>Outdoor, Tropical, High Rainfall &amp; Humidity</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Type</td>
<td>Core</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Coolant</td>
<td>Mineral oil</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Method of Cooling</td>
<td>ONAN</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>KVA Rating</td>
<td>Minimum 1000 KVA</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Number of Phases</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Rated frequency, Hz</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rated primary voltage, V</td>
<td>415</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Rated no load sec. Voltage, kV</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Vector group</td>
<td>Ynd1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Highest system voltage of :</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Primary winding, V</td>
<td>457</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Secondary winding, kV</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Basic insulation level, KV</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Power frequency withstand voltage, kV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) HT Side</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) LT Side</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>No-Load Loss (W)</td>
<td>2100</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Full Load Loss (W)</td>
<td>12300</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Percentage Impedence</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Type of cooling</td>
<td>ONAN</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Catalogue</td>
<td>To be submitted</td>
<td></td>
</tr>
</tbody>
</table>

### H.T WINDING:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’S Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nominal Rated voltage</td>
<td>11 kV</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Maximum system voltage</td>
<td>12 kV</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Basic insulation level (minimum)</td>
<td>75 kV</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tap Changer</td>
<td>+2x2.5%, 0, -2x2.5% of rated kV &amp; all fully rated capacity. Tap Changer shall be off load type, manually operated from an</td>
<td></td>
</tr>
<tr>
<td>Sl. No.</td>
<td>Description</td>
<td>BPDB'S Requirement</td>
<td>Manufacturer's Guaranteed Particulars</td>
</tr>
<tr>
<td>--------</td>
<td>--------------------------------------------------</td>
<td>--------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Nominal Rated voltage</td>
<td>415 Volts</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Highest system voltage</td>
<td>457 Volts</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Basic insulation level (minimum)</td>
<td>3.0 KV</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Inter phase connection</td>
<td>Delta</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Bushings</td>
<td>Porcelain, outdoors type with arcing horns of standard gap, mounted on top of tank. Quantity-3 Nos.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Power frequency withstand voltage for one minute</td>
<td>2.5 kV</td>
<td></td>
</tr>
</tbody>
</table>

L.T WINDING:

Seal and Signature of the Manufacturer

Seal and Signature of the Tenderer
### 8.12 Guaranteed Technical Particulars of Energy Meter

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Description of the Item</td>
<td>3X5(6)A, 3-Phase, 4-Wire Double Tariff Fully Programmable Energy Meter</td>
<td></td>
</tr>
</tbody>
</table>
| 2       | Manufacturer’s Name & Country | • Siemens (Germany/Switzerland)  
• ABB(Switzerland/Finland)/AEG(Germany)  
• Itron(USA)/Elster (USA)  
• Landis Gyr+ (Switzerland) |                                      |
| 3       | Manufacturer’s Model No      | To be mentioned                                                                    |                                      |
| 4       | Type of Meter                | Numerical Programmable Multifunction                                               |                                      |
| 5       | Class of Accuracy            | 0.2                                                                                |                                      |
| 6       | Catalogue                    | To be submitted                                                                   |                                      |

### 8.13 Guaranteed Technical Particulars of Protection Relay

(To be filled up by the Manufacturer in Manufacturer Letterhead otherwise the bid shall be rejected)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>BPDB’s Requirement</th>
<th>Manufacturer’s Guaranteed Particulars</th>
</tr>
</thead>
</table>
| 1       | Manufacturer’s Name & Country | • Siemens (Germany/Switzerland)  
• ABB(Switzerland/Sweden/Finland)  
• Schneider (UK/France). |                                      |
| 2       | Manufacturer’s Model No      | To be mentioned                                                                    |                                      |
| 3       | Type of Meter                | Numerical Programmable IDMT                                                       |                                      |
| 4       | Catalogue                    | To be submitted                                                                   |                                      |
SCHEDULE OF MANUFACTURERS NAME AND PLACES OF MANUFACTURE & TESTING

<table>
<thead>
<tr>
<th>Item No</th>
<th>Description</th>
<th>Manufacture’s name</th>
<th>Place of Manufacture</th>
<th>Place of Testing &amp; Inspection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seal and Signature of the Tenderer
Section 9. Drawings

- A few drawings and diagrams related to Waste to Energy are attached herewith. The intending Tenderers may visit the site, at their own cost and responsibility for better understanding.
Figure 1: Area Map of Keraniganj Upazilla

This Drawing is only for visual understanding and Reference. Actual Plant Layout may vary according to design. Figure is drawn in meter scale.

Figure 2: Plant Layouts
Figure 3: Process Flow Diagram

Figure 4: Simplified flow chart of a dry fermentation process
Figure 5: Single stage batch fermentation process scheme
Figure 6: Material flow chart without RDF-production (stage 1)

Picture 7: Composition of landfilled waste in regions comparable to Keraniganj (Waste Concern, 2009)

Composition of commercial waste in regions comparable to Keraniganj (calculated, data of Waste Concern (2015))
Picture 8: Composition of Commercial waste in regions comparable to Keraniganj (Waste Concern, 2015)

![Waste composition of garment industry](image)

Picture 9: Waste Composition of Garment Waste
SITE FOR
PROPOSED BPMI
TRAINING COMPLEX
(23.89 ACRES)

SITE FOR
BANGLADESH POWER DEVELOPMENT BOARD
(TOTAL BOUNDARY LINED
AREA = 95 ACRES)

EXISTING SITE OF
100 MW RENTAL
POWER PLANT
(POWER PAC)

TOTAL BPDB AREA
95.00 ACRES

BANGLADESH POWER DEVELOPMENT BOARD SITE LAYOUT,
KERANIGANJ, DHAKA DIVISION.
## ANEXURE – 1

**KEY DATA / INFORMATION TO BE PROVIDED BY THE BIDDER ACCORDING TO ANEXURE-2 & ANEXURE-3**

<table>
<thead>
<tr>
<th>SL NO</th>
<th>DATA / INFORMATION</th>
<th>DETAILS (Attach Supporting Documents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Experience of the Bidder</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) General area of functioning</td>
<td></td>
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<tr>
<td></td>
<td>b) Specialized areas of service</td>
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<tr>
<td></td>
<td>c) Experience in the area of present assignment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) List of projects in WTE completed / in operation</td>
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</tr>
<tr>
<td></td>
<td>e) List of projects in WTE under execution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f) Any special accreditation / certificates in the field</td>
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</tr>
<tr>
<td>2.</td>
<td><strong>Understanding of the Assignment &amp; Methodology of Execution</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Work Breakdown Structure for the Scope of the assignment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) Proposed Methodology of execution</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c) Work Schedule in the form of Bar Chart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) List of Experts / Specialists / Team Members</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e) Deployment Plan of Experts / Specialists / Team Members plotted on time scale</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f) Project Schedule</td>
<td></td>
</tr>
<tr>
<td></td>
<td>g) <strong>Technical Data Schedule and specifications of all the equipments</strong></td>
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</tr>
<tr>
<td>SL NO</td>
<td>DATA / INFORMATION</td>
<td>DETAILS (Attach Supporting Documents)</td>
</tr>
<tr>
<td>-------</td>
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<td>--------------------------------------</td>
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<td>3</td>
<td>Qualification of Team Members (Ref Annexure – 2)</td>
<td>PM</td>
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<tr>
<td></td>
<td>a) Educational Qualification</td>
<td>WME</td>
</tr>
<tr>
<td></td>
<td>b) Professional Experience</td>
<td>WEE</td>
</tr>
<tr>
<td></td>
<td>c) Area of Specialization</td>
<td>WMS 1</td>
</tr>
<tr>
<td></td>
<td>d) Skill Sets</td>
<td>WMS 2</td>
</tr>
<tr>
<td></td>
<td>e) Special Achievements</td>
<td>WEE 1</td>
</tr>
<tr>
<td></td>
<td>f) Man-months allocated in this assignment</td>
<td>WEE 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td>4</td>
<td>Financial Status of Bidder</td>
<td>PM</td>
</tr>
<tr>
<td></td>
<td>a) Country of Origin / Presence</td>
<td>WME</td>
</tr>
<tr>
<td></td>
<td>b) Presence in Bangladesh</td>
<td>WEE</td>
</tr>
<tr>
<td></td>
<td>c) Number of Employees including Key Professionals</td>
<td>WMS 1</td>
</tr>
<tr>
<td></td>
<td>d) Turn Over for last 5 Years</td>
<td>WMS 2</td>
</tr>
<tr>
<td></td>
<td>e) Audited Annual Accounts for last 3 Years</td>
<td>WEE 1</td>
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<tr>
<td></td>
<td>f) Proposal for assistance in development of the project</td>
<td>WEE 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TEE</td>
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<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
</tbody>
</table>
ANNEXURE – 2

REQUIREMENTS FOR THE PROJECT MANAGER AND KEY EXPERTS / SPECIALISTS

1. **Project Manager (PM)** – Must be a Waste To Energy (WTE) expert with at least 10 years of professional experience in the design, implementation and monitoring of WTE Projects. He should be holding a degree in the field of Mechanical / Chemical / Environmental Engineering. He should have an excellent technical and planning background and his preferred skills should include project management, technical writing, capacity building, facilitation and project implementation.

2. **Senior Waste Management Expert (WME)** – One such Waste Management expert with at least 5 years of professional experience in planning, designing, evaluating, implementing and upgrading technologies in the field of municipal waste management and monitoring. He should be holding a degree in Engineering or Sciences. He should be having the technical expertise in scoping and evaluating the technical and environmental merits in waste management system. His preferred skills should include technical writing, capacity building, facilitation and project implementation. Involvement in development of National or State Level Policies related to waste management or supporting Guidelines will be given special weightage.

3. **Senior Waste To Energy Expert (WEE)** – One such Waste To Energy expert with at least 5 years of professional experience in planning, designing, evaluating, implementing and monitoring of WTE Projects. He should be holding a degree in Engineering or Sciences. He should be having the technical expertise in scoping and evaluating the technical and environmental merits in waste to energy system. His preferred skills should include technical writing, capacity building, facilitation and project implementation. Involvement in development of National or State Level Policies related to waste to energy or supporting Guidelines will be given special weightage.

4. **Junior Waste Management Specialist (WMS 1 & 2)** – Two such Waste Management Specialist with at least 3 years of professional experience in planning, designing, evaluating, implementing and upgrading technologies in the field of waste management. They should be holding a degree in Engineering or Sciences. They should be having the technical expertise in scoping and evaluating the technical and
environmental merits in waste management system. Their preferred skills should include technical writing, facilitation and project implementation.

5. **Junior Waste To Energy Specialist (WES 1 & 2)** – Two such Waste To Energy Specialist with at least 3 years of professional experience in planning, designing, evaluating, implementing WTE Projects. They should be holding a degree in Engineering or Sciences. They should be having the technical expertise in scoping and evaluating the technical and environmental merits in waste to energy system. Their preferred skills should include technical writing, facilitation and project implementation.

6. **Techno-Economic Expert (TEE)** – One such Techno-Economic Expert with at least 5 years of professional experience in financial and economic analysis of Urban Infrastructure Projects WTE Projects, preferably with the background of waste management or waste to energy projects. They should be holding a degree in Economics or Accountancy / Finance. They should be having expertise project financing, cost recovery mechanism and institutional / multilateral funding requirements.

The above are the minimum requirements Key Persons, Experts / Specialists. The Consultant should engage more number of Experts / Specialists in the related fields in order to complete the assignment effectively and within stipulated timeframe.
ANNEXURE-3
Requirements for EPC Bids

The Bidder shall furnish their proposal considering all main disciplines of work including their complete design and engineering which will cover the Mechanical, Electrical, Civil, Architectural (Buildings), Structural (Buildings and process facilities), Process Water, Drainage, Fire protection, Compressed Air, Pollution Control, Control & Instrumentation etc. The Works shall include proper integration of all the utilities, facilities etc.

In addition to the above, the scope shall also include the processing and obtaining of all requisite permits and approvals required for the implementation and execution of the Works, from all authorities having jurisdiction.

The Bidder shall submit their technical proposal giving appropriate details of each items in the scope and their descriptions, indicative specifications, drawings, catalogues / literatures / data sheets, performance guarantees, functional requirements and also a bill of quantity.

With the EPC approach for the WTE Facility, BPDB expects to secure substantial benefits, including appropriate risk allocation, competitive vendor selection, clear assignment of performance responsibilities to a single contracting entity, and significant cost savings. This should include the following objectives:

• Provide safe, adequate, and continuous solid waste processing;
• Ensure high health and safety of the employees at the WTE Facility;
• Comply with all applicable environmental regulations
• Provide flexibility in diversifying for a range of feedstock especially with respect to quantity and quality;
• Provide capability to respond to future environmental requirements;
• Provide an aesthetically-pleasing WTE Facility;
• Use a sound design and quality construction for long-term operational reliability and durability;
• Incorporate maximum innovation and sustainability;
• Enhance cost-competitiveness and energy efficiency;

The EPC proposal shall also include the following:

• The project schedule represented in the form of a Bar Chart

• Bidder’s write up for Approach and Methodology