



Ref: 5000/023/MJZ/01/23/6

Date: February 26, 2026

DEVELOPMENT OF A MITIGATION ACTION DESIGN DOCUMENT (MADD) UNDER ARTICLE 6 OF THE PARIS AGREEMENT FOR THE LANDFILL GAS COLLECTION AND UTILIZATION SYSTEM (LFGCUS) AT LAKHODAIR LANDFILL, LAHORE, PAKISTAN

Invitation of Bids for the Hiring of Contracting Services for the Waste Characterization of Fresh and Legacy Waste at Lakhodair Landfill Site, Lahore

Dear Sir,

Bids (Technical and Financial) are invited through EPADS (in accordance with the BOQ and qualification criteria uploaded on EPADs) from Contractors/Companies for carrying out the waste characterization studies for the subject project.

The companies capable of carrying out subject work are requested to provide their Company's Profile and the following documents along with their bids:

1. PEC Registration Certificate
2. FBR & PRA Registration Certificates
3. List of Similar Projects completed during last ten (10) years
4. Financial Capability
5. Equipment Capability
6. Personnel Capability
7. Litigation History
8. HSE Policies

The work comprises; Collection, preservation, and transportation of waste samples as per standard protocols (ASTM, APHA, USEPA, or equivalent); Field sampling from designated locations within the landfill site under the supervision of NESPAK staff; Laboratory testing and reporting of physical and chemical composition of fresh waste and chemical composition of legacy waste; Comparison of analytical results with relevant national and international benchmarks (PEQS, USEPA, or equivalent); Preparation and submission of a comprehensive analytical report covering results, discussion, and conclusions. The field and laboratory work shall have to be completed according to the following schedule in three (03) weeks:

Sr. No.	Type of Waste	Sampling Location	Depth (m)	No. of Samples	Remarks
1	Fresh Waste	From Temporary Storage Facilities (TSF) of LWMC	-	01	Mixed representative sample from 18 TSF of Lahore
2	Legacy Waste	Location-1	5, 10, 15, 20	04	Borehole sampling

Sr. No.	Type of Waste	Sampling Location	Depth (m)	No. of Samples	Remarks
3	Legacy Waste	Location-2	5, 10, 15, 20	04	Borehole sampling
4	Legacy Waste	Location-3	5, 10, 15, 20	04	Borehole sampling
Total				13 samples	1 fresh + 12 legacy

Your bid shall be valid for a time period of ninety (90) days after the bid opening. **The work shall be executed under the instructions and full-time supervision of NESPAK staff and the successful bidder shall mobilize to the site on five (05) days' notice after issuance of Letter of Award/Acceptance.**

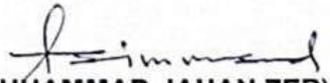
The bidders having an in-house or outsourced Environmental Laboratory with valid certification will be an added advantage. The successful bidder shall be responsible for providing the detailed report covering description of sampling methodology, equipment, and field procedures, analytical results (tabulated and graphical), comparison with applicable standards and interpretation of results and comments on variations or anomalies to NESPAK, within the contract period.

The basis of payment shall be the actual work carried out and approved by the Engineer, as measured by the Contractor and certified by the Engineer and valued at the rate and prices as quoted by you in your bid.

The bidders shall submit a bid security amounting to Rs. 50,000/- along with the bid submission in the form of pay order or bank draft in favor of M/s NESPAK.

Your **most competitive bids (inclusive of all applicable taxes)** in accordance with the BOQ and qualification criteria, must be submitted through EPADs by 1000 hours on or before **March 16, 2026**. Technical and financial bids would be opened on the same day at 1030 hours after their receipt in the presence of those bidders who wish to be present. However, the final decision to accept/reject any or all the bids as per PPRA rules solely lies with the undersigned. The entire work shall be carried out in accordance with the requirements of the terms of reference issued herewith.

for National Engineering Services Pakistan (Pvt.) Limited


(MUHAMMAD JAHAN ZEB)

General Manager/ Head
Geotechnical & Geoenvironmental Engineering Division



HIRING OF CONTRACTING SERVICES FOR THE WASTE CHARACTERIZATION OF FRESH AND LEGACY WASTE AT LAKHODAIR LANDFILL SITE, LAHORE

Terms of Reference (TOR) and Qualification Criteria

1 INTRODUCTION

NESPAK has been engaged by Global Green Growth Institute (GGGI) for providing consultancy services for the subject project. NESPAK's scope of work includes Preparation of Feasibility Study and Mitigation Action Design Document (MADD) for which services from a third party waste characterization contractor/vendor is required.

2 SCOPE OF WORK

In order to evaluate the physical and chemical characteristics of fresh and legacy waste at the landfill site, a qualified and experienced contractor/vendor is required to undertake sampling, testing, and analysis of fresh and legacy waste in accordance with internationally accepted codes and national standards.

The scope of work consists of, but is not limited to, the following activities:

- Field sampling from designated locations within the landfill site under the supervision of NESPAK staff.
- Collection, and transportation of waste samples as per standard protocols (ASTM, APHA, USEPA, or equivalent).
- Laboratory testing and reporting of physical and chemical composition of fresh waste and chemical composition of legacy waste.
- Comparison of analytical results with relevant national and international benchmarks (PEQS, USEPA, or equivalent).
- Preparation and submission of a comprehensive analytical report covering results, discussion, and conclusions.

The tentative sampling plan is provided as under:

Sr. No.	Type of Waste	Sampling Location	Depth (m)	No. of Samples	Remarks
1	Fresh Waste	From Temporary Storage Facilities (TSF) of LWMC	-	01	Mixed representative sample from 18 TSF of Lahore
2	Legacy Waste	Location-1	5, 10, 15, 20	04	Borehole sampling
3	Legacy Waste	Location-2	5, 10, 15, 20	04	Borehole sampling
4	Legacy Waste	Location-3	5, 10, 15, 20	04	Borehole sampling
Total				13 samples	1 fresh + 12 legacy



While the detailed Bill of Quantities is provided as under:

Sr. No.	Item Description	Qty.	Unit Price	Total Price
1	Mobilization and Demobilization of Staff and Equipment including fuel and toll costs (if any) and allowances etc.	1		
2	Field Sampling of Fresh Waste including costs for hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1		
3	Field Sampling ¹ of Legacy Waste at 4 depths for each sample i.e., 5m, 10m, 15m and 20m including costs for coring, consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	3		
4	Physical Sorting and Analysis of the Fresh Waste (approx. 200kg) as per prevailing standards including costs for consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1		
5	Transportation of Waste Samples (Fresh and Legacy) to Laboratory for Chemical Analysis including costs for fuel/toll and vehicle rentals (if any) etc.	13		
6	Chemical Analysis of the Fresh Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	1		
7	Chemical Analysis of the Legacy Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	12		
8	Professional Charges including salary costs of the staff (positions proposed as per TORs).	Lump sum		
9	Reporting, Data Analysis and Presentations as per Client/NESPAK requirements including printing, stationery, postage etc.	Lump sum		
10	Miscellaneous/Contingencies/Other Direct Costs (if any please state)	Lump sum		
Grand Total (PKR) inclusive of all applicable taxes				

3 PARAMETERS FOR LABORATORY TESTING

A. Fresh Waste Analysis

- Physical Composition (% by weight):** Combustibles, Diaper, E- Waste, Glass, Hazardous Waste, Biodegradable Waste, Metals, Non-Combustibles, Paper-Cardboard, Plastics (PET, PP, PE, HDPE ETC), Nylon, Tetrapak, Textile etc.
- Chemical Parameters:** Total Moisture Content (%), Inherent Moisture Content (%), Volatile Solids/Volatile Matter (%) Ash Content (%), pH, Total Organic Carbon (TOC)/Dissolved Organic Carbon (DOC) (g/kg), Gross and Net Calorific Value (kcal/kg), Carbon (%), Nitrogen (%), Hydrogen (%), Sulphur (%) and Oxygen (%).

¹ Field sampling will likely be conducted using the "dry boring method" to ensure the preservation of the sample.



Note: All mentioned percentages are to be calculated by weight.

B. Legacy Waste Analysis

1. **Chemical Parameters:** Total Moisture Content (%), Inherent Moisture Content (%), Volatile Solids/Volatile Matter (%), Ash Content (%), pH, Total Organic Carbon (TOC)/Dissolved Organic Carbon (DOC) (g/kg), Gross and Net Calorific Value (kcal/kg), Carbon (%), Nitrogen (%), Hydrogen (%), Sulphur (%) and Oxygen (%). *Note: All mentioned percentages are to be calculated by weight.*

Note: The number of parameters for fresh and legacy wastes (for both physical and chemical analysis) may vary depending on the project requirements.

4 TESTING STANDARDS AND METHODOLOGY

- a) Analytical procedures shall follow ASTM, APHA, or USEPA methods, or equivalent internationally recognized standards.
- b) Results shall be compared against applicable standards and international benchmarks where applicable or as per the advice of the NESPAK team.
- c) Sampling methodology shall conform to standard waste characterization practices (e.g., ASTM D5231 for solid waste composition analysis).
- d) Proper sample preservation and chain of custody shall be ensured and reported during transportation to the laboratory.
- e) Unit rates quoted for testing shall include all taxes and other costs including the cost of collection, preservation and transportation of samples to the laboratory.
- f) The bid must include any cost of boarding, lodging, travelling and transportation estimated separately with details (if required).
- g) NESPAK has the authority to direct the contractor/vendor to repeat the sampling/monitoring if the results were found unsatisfactory.
- h) Number of sampling points may increase or decrease and the payment shall be based on actual quantity of samples.
- i) All equipment must have valid calibration certificate.
- j) The mobilization time will be within five (05) days after award of work.
- k) Payment of the work shall be made as following protocols, upon satisfactory completion of work and verification by the NESPAK team:
 - o 10% advance on mobilization of equipment and field team.
 - o 30% on completion of sampling activities (both fresh and legacy) and transportation of samples to laboratory;
 - o 30% on completion of physical and chemical analysis of fresh and legacy wastes and submission of results in a draft report; and
 - o 30% on finalization and approval of final report upon satisfactory completion of the work.
- l) NESPAK has the authority to supervise the field activities of the contractor/vendor.
- m) Validity of the bid shall be ninety (90) days from the date of opening.
- n) The vendor/contractor shall be responsible for any kind of security arrangements required at site.



- o) The bidder shall submit a bid security amounting to PKR 50,000/- along with the bid in the form of pay order or bank draft in favor of M/s NESPAK.

5 REPORTING AND DELIVERABLES:

The contractor/vendor shall prepare and submit a comprehensive analytical report including but not limited to:

- Site location map with coordinates of sampling points.
- Description of sampling methodology, equipment, and field procedures.
- Analytical results (tabulated and graphical).
- Comparison with applicable standards.
- Interpretation of results and comments on variations or anomalies.
- Conclusions and recommendations regarding waste characteristics and implications for landfill management.

6 FINANCIAL PROPOSAL

The Financial Proposal shall include all applicable taxes, duties, levies, and charges in accordance with the prevailing/applicable laws and regulations.

7 DURATION OF ASSIGNMENT

The total duration of the assignment shall be 03 weeks, including sampling, laboratory analysis, and report submission.

8 DISPUTE AND DISAGREEMENTS

In the event of any dispute, disagreement, or initiation of legal proceedings arising out of or in connection with the bidding process or execution of the Contract, the matter shall be resolved in accordance with the applicable provisions of the PEC Standard Bidding Documents², PPRA Rules, and NESPAK's prescribed procedures, as amended from time to time.

9 CONFIDENTIALITY

All data and results generated under this assignment shall remain the property of the Client and shall not be shared or published without written approval.

10 QUALIFICATIONS CRITERIA

Qualification will be based on the criteria given in the following paras regarding the Applicant's experience, personnel and equipment capabilities, financial position and litigation history, as demonstrated by the Applicant's responses in the Forms attached as Annex-A to this Document. The Employer reserves the right to waive minor deviations, if these do not materially affect the capability of an Applicant to perform the contract.

² <https://www.pec.org.pk/wp-content/uploads/2022/04/3-Std-Form-of-Bidding-Docs-for-Proc-of-WorksSmaller-Contracts.pdf>



Experience and resources of the Company intended to be employed as sub-contractor shall not be taken into account in determining the Applicant's capability with the qualifying criteria.

The Applicant Firm may, in order to enhance its technical and financial capability, enter into an association with other firm(s) in the form of a Joint Venture (JV). In such case, the Applicant Firm and the JV partner(s), collective experience, resources and financial soundness of all partners shall be considered.

Accordingly, the Applicant shall submit a duly executed JV Agreement containing, inter alia, the following provisions for evaluation of the bid in accordance with the prescribed requirements:

1. All partners of joint venture shall at all times and under all circumstances be liable jointly and severally to NESPAK for the execution of the entire Contract in accordance with the Contract terms and conditions and a statement to this effect shall be included in the JV agreement.
2. The Lead Partner shall be authorized to incur liabilities, receive payments and receive instructions/correspondence for and on behalf of any or all partners of the joint venture.
3. A copy of the agreement entered into by the joint venture partners to be submitted stating the conditions under which it will function, its period of duration, the persons authorized to represent and obligate it and which persons will be directly responsible for due performance of the Contract and can give valid receipts on behalf of the joint venture, the proportionate participation of the firm forming the joint venture, and any other information necessary to permit a full appraisal of its functioning. No amendments/ modifications whatsoever in the joint venture agreement shall be agreed to between the joint venture partner without prior written consent of NESPAK.

10.1 GENERAL INFORMATION

The Applicant shall provide general information of his firm as per the format specified in the Application Form A-1 attached in Annex-A.

10.2 EXPERIENCE OF THE FIRM

The contractor/vendor must:

- Availability of an in-house or outsourced Environmental Laboratory having a valid Testing Certificate/NOC from recognized accreditation bodies such as the Pakistan National Accreditation Council (PNAC) and the Punjab Environment Protection & Climate Change Department (EP&CCD) shall be considered as an added advantage.
- Have at least 05 years of experience in the field of solid waste characterization and/or environmental testing.
- Demonstrated qualified managerial and technical staff (chemists, environmental engineers etc.).
- It will be preferred to have at least one similar assignment completed in the last 10 years (if available, furnish evidence).



10.3 PERSONNEL CAPABILITIES

The contractor/vendor firm shall possess adequately qualified and experienced technical staff to successfully execute the assignment. The minimum key personnel and their required qualifications and experience are given below:

Sr. No.	Position Title	Minimum Qualification	Minimum Professional Experience	Key Responsibilities
KEY EXPERTS				
1	Team Leader	At least 16 years of education (B.Sc./BS/BE/M.Sc.) in Engineering preferably in Environmental, Civil, or Mechanical Engineering, or Environmental Sciences or other relevant field from a recognized institution	10 years	Responsible for field sampling supervision, coordination with client/consultant, and overall technical management of sampling and testing activities.
2	Chemist / Chemical Engineer	At least 16 years of education (B.Sc./BS/BE/M.Sc.) in Chemistry or Chemical Engineering or other relevant field from a recognized institution	10 years	Responsible for chemical analysis of fresh and legacy waste samples, interpretation of laboratory results, and ensuring QA/QC compliance with relevant standards (ASTM, APHA, USEPA).
NON-KEY EXPERTS				
3	Laboratory Analyst (2 Nos.)	16 years of education (B.Sc./BS) in Chemistry, Environmental Sciences, or relevant field from a recognized institution	03 to 05 years	Responsible for conducting laboratory tests (Moisture, TS, VS, TOC, etc.) under supervision of Senior Chemist/Engineer, and maintaining analytical records.
4	Field Analyst / Field Officer (2 Nos.)	16 years of education (B.Sc./BS) in Environmental, Civil, or Mechanical Engineering or Sciences or other relevant field from a recognized institution	Upto 03 year	Responsible for field sampling, sample labeling, preservation, and transportation to the laboratory under QA/QC protocols.

10.4 EQUIPMENT CAPABILITIES

The Applicant shall own or have assured access to the equipment in full working order, and must demonstrate that, based on known commitments, these will be available for deployment on the proposed works. The Applicant will supply information as per the format specified in the Application Form A-4 attached in Annex-A.



10.5 FINANCIAL CAPABILITIES

The Applicant shall meet the following minimum criteria:

- 1) Annual turnover, which is also termed as income from contracting for procurement of services related to solid waste and is defined as billing for works completed during the last three (3) years of at least Pak Rupees. 15 million. Documentary proofs of the same shall be submitted in the form of letter of awards, completion certificates, etc.

The Applicant shall also provide evidence of financial health such as bank account statements, available line of credits, etc., to show the soundness of the Applicant's financial position for procurement of waste characterization works. The Applicant will provide annual turnover of the similar works carried out by him during the last three years. The Applicant will supply annual turnover information as per the format specified in the Application Form A-5 attached in Annex-A.

10.6 LITIGATION HISTORY

The Applicant should provide accurate information on any litigation or arbitration resulting from Contracts completed or under execution over the last three (03) years. The Applicant will supply information as per the format specified in the Application Form A-6 attached in Annex-A. A consistent/ overwhelming history of litigation against the Applicant may result in rejection of the application. In case an Applicant claims Nil litigation, he shall submit the same statement on the letter head of his company.

10.7 APPLICATION OF HEALTH, SAFETY AND ENVIRONMENTAL STANDARDS

The Applicant shall provide the HSE Policies and supporting documentary evidence for the following:

- i) First Aid Box
- ii) Personnel Protective Equipment (PPE)
- iii) Standard Operating Procedures (SOPs)
- iv) Health, Safety and Environmental (HSE) Policies
- v) HSE staff

The Applicant will supply information as per the format specified in the Application Form A-7 attached in Annex-A.



General Information

All individual Applicants applying for qualification are requested to complete the information in this form. Nationality information (if applicable) is also to be provided for foreign owners as required under the PEC Bye-Laws as a Partnership.

1.	Name of Firm	
2.	Head Office Address	
3.	Telephone	Contact Person: Name: Title: Cell No.
4.	Fax	E-mail
5.	Place of Incorporation/Registration Certificates of the firm*	Year of incorporation/registration

*** Registration certificates must include:**

- Valid registration with Pakistan Engineering Council (PEC)
- Valid registration with Federal Board of Revenue (FBR)
- Valid registration with concerned Provincial Revenue Authority (PRA)
- Proof of active taxpayer of FBR & PRA



Financial Capabilities

Name of Applicant: _____

Year	Annual Turnover (in PKR)
2024 – 2025	
2023 – 2024	
2022 – 2023	

Note: Financial soundness certificate from the bank(s) as specified in section 8.5 must be provided by the Applicant



Bill of Quantities

Sr. No.	Item Description	Quantity	Unit Price	Total Price
1	Mobilization and Demobilization of Staff and Equipment including fuel and toll costs (if any) and allowances etc.	1		
2	Field Sampling of Fresh Waste including costs for hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1		
3	Field Sampling of Legacy Waste at 4 depths for each sample i.e., 5m, 10m, 15m and 20m including costs for coring, consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	3		
4	Physical Sorting and Analysis of the Fresh Waste (approx. 200kg) as per prevailing standards including costs for consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1		
5	Transportation of Waste Samples (Fresh and Legacy) to Laboratory for Chemical Analysis including costs for fuel/toll and vehicle rentals (if any) etc.	13		
6	Chemical Analysis of the Fresh Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	1		
7	Chemical Analysis of the Legacy Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	12		
8	Professional Charges including salary costs of the staff (positions proposed as per TORs).	Lumpsum		
9	Reporting, Data Analysis and Presentations as per Client/Consultant requirements including printing, stationery, postage etc.	Lumpsum		
10	Miscellaneous/Contingencies/Other Direct Costs (if any please state)	Lumpsum		
Grand Total (PKR) inclusive of all applicable taxes				



Engineer's Estimate

Sr. No.	Item Description	Quantity	Unit Price	Total Price
1	Mobilization and Demobilization of Staff and Equipment including fuel and toll costs (if any) and allowances etc.	1	50,000	50,000
2	Field Sampling of Fresh Waste including costs for hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1	100,000	100,000
3	Field Sampling of Legacy Waste at 4 depths for each sample i.e., 5m, 10m, 15m and 20m including costs for coring, consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	3	400,000	1,200,000
4	Physical Sorting and Analysis of the Fresh Waste (approx. 200kg) as per prevailing standards including costs for consumables, hiring of onsite trained staff/enumerators (if needed), per diem or per sample charges for equipment etc.	1	100,000	100,000
5	Transportation of Waste Samples (Fresh and Legacy) to Laboratory for Chemical Analysis including costs for fuel/toll and vehicle rentals (if any) etc.	13	10,000	130,000
6	Chemical Analysis of the Fresh Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	1	50,000	50,000
7	Chemical Analysis of the Legacy Waste as per prevailing standards including costs of per sample use of equipment/analyzers and any consumables/chemicals etc.	12	45,000	540,000
8	Professional Charges including salary costs of the staff (positions proposed as per TORs).	Lumpsum		200,000
9	Reporting, Data Analysis and Presentations as per Client/Consultant requirements including printing, stationery, postage etc.	Lumpsum		50,000
10	Miscellaneous/Contingencies/Other Direct Costs (if any please state)	Lumpsum		200,000
			Net	2,620,000
			PST @ 16%	419,200
			Grand Total (PKR)	3,039,200
			Say	3,000,000