



for hiring Consulting Services for landfill feasibility study, Preliminary Design and Preparation of Design-Build Bidding Documents for the development of a sanitary landfill in Galiyat, Kumrat, Chitral, Kalam and Kaghan

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1 Background

The initial analytical work commenced through the Multi Donor Trust Fund supported 'Economic Revitalization of Khyber Pakhtunkhwa (KP) Project (ERKP)' including; (i) a study titled 'KP Tourism Sector Analysis (2018)'; (ii) procurement of waste collection and management equipment for the local authorities in Galiyat, Kaghan and Kalam; (iii) provision of the road and snow clearing equipment for these three destinations; (iv) training of around 800 public and private tourism sector representatives and community participants on SOPs for COVID-19 preventiveness; (v) development of Tourist Management Information System; and (v) installation of pre-fabricated toilets in Galiyat.

The KP Tourism Sector Analysis (2018) provided a baseline for the IDA financed KP Integrated Tourism Development Project (KITE) which is effective since November 2019. Through KITE project, Destination Investment and Management Plans (DIMPs) for three sites (Chitral, Kalam and Kumrat) are being prepared. The feasibility of four Integrated Tourism Zones (ITZs) in KP (Ganool, Madakhlast, Thandiani and Mankyal) is also being prepared. Both Destination Investment and Management Plans (DIMPs) and Feasibility Study include the requirements for information collection and identification of activities for waste management planning in the respective areas. The KP Tourism Sector Analysis identified substantial issues at the tourist sites due to the lack of planning and equipment for collecting, dumping and treating solid waste left behind by the visitors. The issue is aggravated during the peak tourist seasons in summer. This is creating burden on the ecology and aquaculture and already constrained capacities of the authorities, with little or no involvement of the private sector in waste management activities.

KITE project envisages to hire the services of a consultant (firm) to seek preliminary engineering designs for solid waste management (SWM) sites, pre-identified by the GoKP at four tourist locations. The activity will be informed by the Destination Investment and Management Plans (DIMPs) and Feasibility Study and other analytical pieces of the WBG, GoKP and private sector.

2 Objectives

2.1 Overall objective

To ensure feasibility and develop the most cost-effective and sustainable design for SWM landfill for Galiyat, Chitral, Kumrat, Kalam and Kaghan within the framework outlined below and taking into account the local context and capacity constraints.

Following are some of the pre-identified landfill sites. (The number can be increased or decreased by client).

1. Dhamtour near Abbottabad in Galiyat
2. Naran Chita khata
3. Kaghan Larii



2.2 Specific objectives

From a focused perspective, the specific consultancy assignment objectives, which will be translated into two main tasks to be undertaken by the Consultant are as follows:

Task 1

- Review of available information and collect specific site data, such as maps, reports, geological or hydrogeological data;
- Review, validate and update current and future waste generation quantities, and transportation and disposal infrastructure, based on recent studies and investigation;
- Review institutional feasibility including capacity building needs
- Review financial and economic feasibility
- Evaluate design conditions and report the engineering analysis, complete with identification of design issues and needs; in terms of technical, time, cost, quality and sustainability;
- Evaluate suitability of identified sites, select preferred site and confirm overall feasibility.

Task 2

- Prepare preliminary design¹ of projected facility for an **operational capacity of at least 15 years** within an engineered structure and adoption of, modern and effective method of disposal in terms of environment, cost, applicability and sustainability;
- Select best international practices and technologies to prevent environmental impacts associated with the new facility and conduct stakeholder consultations to validate these technical options are appropriate and feasible in the country context;
- Provide Social and Environmental consultants with baseline data, design and operational information to inform the ESIA/ESMP and RAP/Abbreviated RAP;

¹ Preliminary design includes civil, mechanical, and architectural/structural design. It comprises the description of all the mechanical processes and water systems to ensure proper integration into the structures. The preliminary design report shall include all drawings describing structural components and mechanical processes of the facility, and the ways in which they interrelate. The report should include an outline of materials and equipment specifications to provide cost estimates to about 15% accuracy. Operating cost estimates and the construction schedule are also provided. The consultant should note that the quality of preliminary design should drastically reduce the risk of future significant conceptual or siting changes.



- Prepare technical specifications, sketches and bill of quantities with estimated costs of the new facility and all site auxiliary infrastructure
- Prepare the bidding documents for a design-build (D/B) contract according to the World Bank requirements;

2.3 Minimum Design Requirements of the Sanitary Landfill

Proposed Landfill design characteristics include the following. This will be elaborated by the consultant with specific technical specifications and cost estimates:

1. Waste storage cells:
 - i. Cell for household waste: This facility will be divided in sub-cells, each being operated and reclaimed consecutively;
 - ii. Cell for hazardous household waste: A small cell adjacent to the main storage cell, will allow for disposal of household generated specific materials and specifically lamps, consumer electronics, motor oil, empty paint, solvent and pest control containers. Flammable, explosive, toxic or poisonous material will not be accepted;
2. Lifespan: 15-20 year lifespan, depending on land availability and engineering options. Site operation will be phased, keeping only one cell in operation at all times, and final reclamation achieved at the end of the operating life.
3. Leachate collection, storage and treatment: Leachate will be collected and stored before treatment on site. The proposed treatment is typical of modern landfills and consists of the following consecutive steps:
 - iii. Recirculation of leachate in the cell during dry season
 - iv. Membrane filtration
 - v. Constructed wetlands
4. Landfill gas capture and flaring;
5. Fencing and greening;
6. Weighbridge and access control, to ensure accurate measurement of incoming waste quantities;
7. Offices and parking;
8. Material recovery platform to sort and store recyclables;
9. Auxiliary facilities for workers, including showers, restrooms and canteen;



3 Scope of Work

The scope of the required services has been divided into two separate consecutive tasks:

- i. TASK 1: Feasibility study
- ii. TASK 2: Preliminary design and Request for Bids for D/B contract

Consultants should note that the proposed tasks/activities below shall not be considered exhaustive and should include all activities deemed necessary to produce a high-quality output.

Important notice: Environmental and social diligence will be conducted in parallel to this feasibility study. The Consultant is expected to share any relevant information with the E&S consultant AND incorporate any recommendation pertaining to E&S safeguards in order to minimize project impacts.

3.1 **TASK 1 : Feasibility study**

In this task, the Consultant shall review and study all existing data, reports, plans, maps, and drawings with the purpose of fully familiarizing itself with the pre-identified sites and identifying information gaps, arranging for additional data requirements collection including field investigations and commencing the conceptual design services.

Following completion of this task, the Consultant is expected to have developed a full idea regarding requirements for the proposed operation, select the preferred site, assert feasibility, and make further recommendations for the development of the landfill.

3.1.1 Stakeholder consultation

In order to ensure a coherent approach, the Consultant shall launch a series of extensive meetings with the representatives of the PMUs KITE, Galiyat Development Authority (GDA), Kaghan Development Authority (KgDA), Kalam Development Authority, Kalash Development Authority, Kumrat Development Authority, concerned District Administration, concerned TMAs, Local Govt. Department, local community or non-governmental organizations, focus group discussions with local inhabitants, organizations providing waste collection services, provincial and national organizations, and other relevant stakeholders and institutions with a view of defining the overall requirements in all aspects including:

- Surface areas and space allocation;
- Waste production: confirm the amount of municipal waste generation and current collection and disposal rates and provide a forecast of the amount of municipal waste collection in the area, in the context of the proposed landfill facility;
- Space requirements and capacity;



- Utilities' requirements;
- Applicable regulation and land and building permits;
- Design standards and performance criteria;
- Confirmation that the proposed design characteristics in this TOR are feasible and appropriate for the context;
- Any other aspects affecting the design of the facility
- Architectural setup and general layout.
- Requirements of the associate equipment, vehicles, work force, training and so on.
- Recycling options for plastics, glass and other solid waste

3.1.2 Baseline Data Collection and record documentation concerning pre-identified sites

Existing documentation regarding the development of landfill capacity including studies, reporting, maps, plans and records are to be read and considered in the development of the technical and financial proposal. Note that the Consultant has to collect design data from all sources and not only depend on reviewing the given baseline data.

During this task, the Consultant shall carry out all required field investigations and verifications with the purpose of verifying the collected data, information, maps, plans, waste volumes, etc. and for collecting and additionally required information. The consultant is responsible for securing the relevant approvals and consent from the relevant authorities prior to conducting site investigations.

The Consultant shall review and validate the baseline sector information included in the various reports. The consultant should collect site-specific and project information outlined below, which does not yet exist:

- Maps for project area relevant locations;
- Walkover survey and non-invasive site investigations;
- Land ownership, current and future in case acquisition is foreseen;
- All relevant sites specific information geography, weather, topography, surface and groundwater hydrology, geology, soil conditions and permeability, seismic activity, site boundaries, etc.
- Findings and recommendations contained in the relevant sections of reports and studies which may have been accomplished earlier;
- Existing underground utilities;



- National regulation regarding landfill sites;
- review, assess, and verify the alternative solutions and facilities proposed for the project; and identify the most suitable option;
- Historical hydrological and meteorological data to indicate maximum rainfall patterns, wind speeds, etc.
- Existing information required for structural design, such as geotechnical information, etc.
- Locally available construction materials;
- Breakdown of prices from at least 5 recent projects of relevant nature;

3.1.3 Site investigations

Field investigations and laboratory subsurface soil exploration tests are critical to confirming technical feasibility and to the definition of the proposed program of works, and shall be carried out to confirm (i) the quantity of soil material available within the site for cover purposes, permeability of the base of the landfill cell and of the material to be used for final cover, bearing capacity of the base of the landfill cell, stability of any slopes to be cut, groundwater regime, and baseline quality of ground and surface water, and (ii) the viability and cost estimates of the project, of the different facilities in accordance with approved national and international codes of practice.

Note: site investigations are required at each of the pre-identified sites.

- Site investigation plan

Prior to commencing investigations, the Consultant will prepare a comprehensive plan describing surveys, investigations, including sampling and testing, and obtain proper authorizations to access locations to be surveyed.

- Topographic survey

In this task, the Consultant shall carry out the required topographic surveys for the sites to enable the preparation of general site layout, alignment, roads profiles, extent of embankment and cut slopes profiles (with minimum horizontal accuracy of 50cm and vertical accuracy of 50cm), cross sections, general ground layouts and facilitate cut and fill calculations and other downstream work. The resulting document shall be of a scale (i.e. 1:1,000 to 1:2,000) and size accurately reflecting the results of the survey. The surveyor shall locate and show on the topographic survey map following information:

Contours lines indicating the shape and elevation of the land over the entire parcel, the location of permanent structures including retaining walls, bridges, and culverts, the location of street or road paving, entrance drive openings and sidewalks, elevations on the top of curbs, gutters and



sidewalks, cadaster or official plot parcel delineation, North arrow and scale of drawing, legend depicting the symbols and abbreviations used on the drawing, spot elevations covering the entire survey limits showing high points, low points, grade changes, and at sufficient intervals to represent the general character of the terrain. location and elevation of lakes, rivers, streams or drainage courses on or near the surveyed area. description, location and elevation of benchmarks as well as coordinate system used in the survey.

- Geotechnical/Soil Investigations and analysis

The Consultant shall prepare site plans indicating the required boreholes locations for geotechnical investigations including depths, coordinates, geotechnical investigations specifications, required site and laboratory testing, etc... for subsequent execution. At least one borehole shall be drilled per 5 acres of the project area and samples collected at every 2m interval to a depth of 20 m below the ground surface.

Subsurface explorations or borings shall be executed by rotary drilling rigs at the selected locations.

Note that the Consultant should integrate the results of the site investigation programs undertaken in the ESIA Reporting of the selected landfill site, in order to address the adverse environmental impacts reported in the assessment as well as the appropriate mitigation measures proposed in the ESIA reports. Samples and blow counts shall be taken according to the approved standard. Water levels shall be established when first encountered right after drilling and 24 hours after completion. The elevation at which groundwater (if needed) is lost or gained when using casing shall be observed and recorded.

- Laboratory Tests

Mechanical, physical and chemical laboratory tests shall be performed as needed, in accordance with the approved standards by an independent and governmental recognized institute. At this stage, it is proposed to use ASTM standards. A specialized independent laboratory chosen by the Consultant for carrying out the sampling and testing is subjected to a prior authorization from Client and/or the project's beneficiaries before commencement. The selected laboratory shall meet the relevant national and international standards.

Parameters for lab testing will comprise the following indicative list:

- Grain-size distribution
- Natural in place density moisture content
- Laboratory Moisture density relationships (ASTM D698)
- Atterberg limits for cohesive soil
- Laboratory Permeability and Coefficient of permeability
- Compressive strength



- Compaction proctor or modified proctor
- Consolidation
- Soil plasticity
- Groundwater chemical analysis
- Hydraulic conductivity of in place clay/soil materials
- Other related testing or visual inspection

3.1.4 Conclusions of site investigations

According to the investigations above the Consultant will provide technical confirmation of the proposed site selection, more specifically;

- Suitability of the sites investigated as regards the development of a landfill, according to international standards (incl. World Bank documentation) for landfill siting and construction;
- Recommend preferred site
- For the preferred site: Impacts on the environment (including Climate Change) and on communities per the baseline collected ;
- Recommend suitable measures to avoid, reduce or compensate identified impacts;

3.1.5 Financial and Economic Analysis

The objective is to assess whether each relevant entity will have funding to cover long-term costs as needed to ensure project sustainability, and identify actions needed to ensure project financial sustainability. For this the consultant will conduct the following tasks:

- Prepare financial projections and conduct financial analyses of the executing and implementing entities, and incremental recurrent costs, to determine the financial impact of the project on these entities as well as financial sustainability,
- Review proposed cost-recovery and tariff policies, including affordability;
- Conduct financial evaluations including sensitivity analyses of the operation;
- Identify risks project financial sustainability or viability;
- undertake an economic evaluation of the project components to estimate the economic benefits covering, among other things, demand analysis, least economic cost analysis, economic cost and benefit analysis, economic internal rates of return, average incremental economic costs, sensitivity analysis, risk analysis, poverty impact ratios, affordability analysis, and assessment of subsidies (if applicable).



3.1.6 Institutional Analysis and Capacity Strengthening

The consultant will review the existing institutional framework for waste management, assess the institutional capacity of the different entities involved in the development and operation of the project, prepare project implementation arrangements, and prepare institutional and capacity strengthening programs.

More specifically the consultant will:

- identify key stakeholders, local administration structures, and relationships among key institutions at the Federal, Regional, and City levels, along with policies, regulations, strategies;
- Identify policy, institutional, financial, and human resource bottlenecks that constrain effective waste management;
- Recommend an institutional framework necessary for efficient landfill development and management with clearly defined responsibilities, required qualification of personnel, and budget allocation and flow of funds;
- Identify project implementation and O&M entities after project completion considering the capacities of concerned entities and prepare realistic institutional arrangements;
- Assess the managerial, technical, and administrative capacity of the relevant entities; and suggest remedial action plan to build their capacities to minimize risks; and provide suggestions to improve governance and management, and to strengthen capacity for SWM service provision, effective sector regulation, and environment improvement;
- Prepare an institutional analysis addressing all the above issues, and provide recommendations for institutional and policy reforms to improve urban management and environment improvement when deemed important;
- Design and prepare capacity strengthening programs for the different stakeholders to strengthen their capacity to efficiently implement, operate, and maintain the facilities and techniques to be introduced under the project; and to ensure the sustainability of project benefits; and
- Review existing policies, guidelines, and legal frameworks for private sector engagement in SWM service provision including landfill management;

3.1.7 Validation

All data, findings and conclusions will be compiled in a Feasibility Report. This report will be presented to the different stakeholders and to the World Bank for comments and final validation, before proceeding with Task 2 below.



3.2 TASK 2: Preliminary design and Request for Bids

3.2.1 Preliminary design

The Consultant shall prepare a site development plan for the lifespan of the landfill based on forecasts of waste generation obtained and validated earlier. In this task, the Consultant shall prepare all required preliminary architectural and general engineering designs, drawings, calculations, plans and cost estimates for all site development works, including:

- The location of the sanitary cell in the landfill site (coordinates and topography) - general layout
- Site layout plans including preparation works, internal roads, access roads, auxiliary facilities, connection to external facilities and utilities, etc....
- General access roads design, profiles and cross sections;
- General leachate collection system, leachate zone sections, pumping, sump/ reservoir, storage pond, drainage and pumping, layouts, sections, and profiles;
- Municipal utilities at the landfill site (power supply and water supply requirements & layouts);
- General layouts for the landfill cell closure works, final reshaping and plateau construction, final side slope development, final capping cover;
- General layouts for the Material Recovery Platform
- General layouts for auxiliary offices car parking etc.
- Preliminary cost estimate on a +/-15% accuracy basis

Preliminary design shall include an analysis of alternative options and the Consultant will reach preliminary agreement on technical solutions with the Client, based on indicative landfill design and preliminary costs estimate. The analysis shall include sustainable and practicable options for the management of leachate, including collection, transfer, storage, and on-site treatment and suitable discharge. The Consultant shall develop a set of design specifications based on acceptable requirements & standards and will propose a preferred set of containment measures from the number of options identified.

Important notice: This deliverable will also inform the E&S Consultant (already hired by the project – NESPAK), which will be contracted in parallel, for establishing the baseline as well as assessing impacts associated with the construction and operation of the future facility. All primary and secondary data and information gathered and collected shall be shared with the E&S consultants AND recommendations from E&S consultant incorporated in the design.



3.3 Request for Bids

Upon approval preliminary design, the Consultant shall proceed to develop Request for Bids and assist the Client in the finalization of package for publication of Request for Bids.

3.3.1 Request for Bids

Based on the findings of forgoing activities, the Consultant shall further the approved preliminary designs with all required technical specifications and bidding documentation in accordance with national, international and WB standards for all works components designed.

RFB n shall reflect the Pakistan Environmental Protection Agency (EPA) design guidelines, criteria and standards, as well as other design criteria specified by the World Bank.

The Consultant shall prepare the following:

- Employer's requirements detailing :
 - Site preparatory works,
 - Earthworks including profiles and cross sections, detailed excavation works layouts, reference points and slope construction profiles, detailed lining (geo-membrane and geo-synthetic materials), manholes and slopes of the cell sections and layouts; detailed geo-membrane contour and leachate bottom drainage system sections and anchor trench layouts. detailed storm water collection and drainage sections and layouts;
 - Architectural designs and drawings for the site facilities;
 - Environmental monitoring and management systems; general layout of the recommended gas collection system;
 - Electro-mechanical work design: perform engineering and undertake design of the following electro-mechanical work, in accordance with the findings and mitigative measures recommended by the environmental assessment: pumping unit for leachate to the assigned leachate storage pond, leachate treatment facility, etc...
 - Electrical shall include electrical power and distribution system at the site;
 - Complete O&M manual for the entire facility and equipment
- Specific provisions to be detailed :
 - fire protection
 - provision of electricity, communications, and water supply/sanitation systems, as needed



- signs, gate control, security arrangements, temporary on-site roads and parking areas
- offices
- spreading and grading requirements
- slope stability requirements
- erosion control
- drainage to intercept and divert surface runoff away from the solid waste masses
- leachate collection and treatment facilities, as needed
- gas ventilation facilities and open flaring, as needed
- gas and groundwater monitoring wells and systems
- soil cover and top soil requirements
- seeding and landscaping
- fencing
- flood control
- windblown litter control
- Bill of Quantities and Final Cost Estimates,
 - Detailed BOQ shall also be prepared of all items of works and for each component and subcomponent on separate basis. The BOQ's shall be developed to such a level of details as to allow easy estimation of construction costs, which would allow receipt of responsive contractor bids for the works under consideration.
 - Prepare confidential cost estimates (engineer's estimate) through priced BoQ. A cost breakdown estimate (on $\pm 10\%$ accuracy basis) shall be provided by the Consultant separately for all items of works, components and subcomponents within the local context of Khyber Pakhtunkhwa and for such type of project. In case, that cost estimations provided for the items of the final BOQ exceed the allocated budget, then the Consultant may be asked to revise the program of works and re-scale up the size of the facility to be within the available resources.
 - Define the methods of payment per item which would be most appropriate to enable and facilitate cost and quality control. Separately note taxes which are anticipated for each item, such as value added taxes and customs duties.
- Request for Bids should include;
 - Preparatory works (such as demolition or site clearance)



- Approvals programs
 - procurement programs
 - Manufacturing programs
 - Delivery programs
 - Installation programs
 - Testing and commissioning programs
- The Request for Bids would include an Environmental and Social Management Plan (monitoring and Health and Safety), informed by the ESIA, which would be completed as a parallel assignment.
 - Other recommendations from the ESIA which should be integrated into the Request for Bids;
 - Any supplementary information attached to the bidding documents of the D/B contract;
 - Recommend suitable solid waste management equipment required for landfill operations and associated maintenance equipment.

3.3.2 Standards and norms

The specifications and documentation shall comply with national standards published by the Pakistan Standards and Quality Control Authority (PSQCA), as well as international standards such as ASTM International (mandatory for geomembranes) and International Electro technical Commission (IEC).

In addition, all materials, equipment, construction activities to be implemented under this contract shall fully comply with the latest governmental & engineering standards applicable to the project.

Conditions of contract, conditions of tender and all necessary tender documentation to a standard appropriate for international competitive bidding, in line with Pakistan and World Bank procurement standards.

3.3.3 Procurement Advice

The consultants will offer technical advice and assistance to the client in the procurement process for the D/B consultant/contractor. Advise the Client in dealing with contractor queries during the procurement process; and Advise and assist with technical queries as may be requested by bid evaluation committee during the bid evaluation process and in the drafting of Bid Evaluation Reports carried out by the Client and other stakeholders, with the assistance of the consultants.



4 Deliverables

4.1 Deliverable 1: Inception report

This report should describe any problem encountered in the understanding or planning of the intervention, confirm the timeline and content of deliverables, including any re-alignment of activities in regard to the intended results, when deemed necessary. The report will detail the approach, methodology, tools and technologies employed for completing the assignment, as well as duly justified changes that may be required to the initially proposed approach.

The report should clearly identify and list stakeholders to be consulted during the project and collate all data, information and literature collected at the time of the report, identifying missing documentation viewed as critical in the completion of the study.

The consultant shall describe roles and responsibilities of its team members as well as internal processes to ensure the quality of deliverables.

4.2 Deliverable 2: Feasibility Report

The results of the laboratory and field data shall be studied by the Consultant and tabulated in standard forms for final recommendations. The technical report shall recommend the most feasible type of layout, optimum bedding for the various components, protections, etc. These shall be supported by drawings of the boring locations, boring logs and other necessary information. All information and data collected and analysis and modelling performed should be listed in the report including a directory of folders as to where such information is located. All such information, data, analysis and modelling should be organized into a directory of clearly labelled folders, sub-folders and files, and delivered on 3 external hard drives (for those with limited internet connectivity) and in a 5 year cloud folder for long term access and institutional memory.

4.3 Deliverable 3: Preliminary design report

Based on deliverables 1 and 2, this report shall include all preliminary design documentation as described in § 3.3 above, including calculation and drawings, and clearly portray all pros and cons of the preferred option, to provide Client with suitable elements to make final approval on the most informed basis.

4.4 Deliverable 4: Request for Bids

Deliverable 4 comprises complete tender documentation for D/B contract as itemized above.



The Request for Bids shall be submitted in draft format (i.e. 2 hard copies and electronic copy), then the final version incorporating all remarks from Client shall be submitted in 2 hard copies and electronic copy.

5 Project Duration, and Schedule of Deliverables

The assignment will require approximately 220-man days over a period of eight (8) calendar months.

The consultants are expected to mobilize within one month of contract signing. All experts will make themselves available for the full duration of the assignment.

All written deliverables will be in English language.

Deliverable	Duration (in calendar week)
Deliverable 1 Inception Report	3 weeks after contract signing date
Deliverable 2 Feasibility report (draft)	12 weeks following contract signing date
Deliverable 3 Preliminary design report	20 weeks following contract signing date
Deliverable 4 <ul style="list-style-type: none"> Final Request for Bids for D/B contract Requirements and specifications of waste management, treatment, composting and recycling equipment, and vehicles and training for the local authorities based on the deliverables 3 and 4. 	4 weeks following approval of Deliverable 3



Guidance to Consultants

Input from the Client

6.1 The following services and facilities will be provided by the Client without cost to the Consultant.

- a) **Data.** The Client will provide the Consultant with access to all available data, detailed studies and reports, survey data, information, maps, drawings and internal documents relevant to the consulting services. All reference material will be loaned to the Consultant and shall be returned at the completion of the assignment or earlier, as may be requested.
- b) **Access.** The Client will arrange for access by the Consultant to the site and communities likely affected by the project, etc., which the Consultant deems necessary to visit and to conduct field investigations in connection with performing its duties. Access to the key officials in the city and local authorities concerned with subjects related to the assignment will also be arranged by the Client.

6 Qualification of Firm and Team

The Interested consultants will be expected to demonstrate or provide explicit information/evidence of their qualification to perform this assignment, in their profiles, in the areas covered by the project as indicated above. Firms should have a specific and proven competence and experience in design, supervision, procurement, and contract administration of tasks delineated in TORs. A firm should have experience in same business for at least 10 years. Should have completed at least two similar assignments in past five (5) years indicating the nature and scope of these assignments in areas covered by ToRs

6.1 Indicative Disciplines and Team composition

The Consultant shall provide the required staff and qualifications to manage all the different tasks of the assignment.

Client reserves the right to reject and/or instruct removal of staff due to nonperformance.

Specialist	Experience & Qualifications	Years of Experience
<u>Team Leader/Civil Engineer</u> Full time	Minimum BSc degree in Civil Engineering with Solid experience in the planning and design of MSW facilities particularly sanitary landfills and leachate management systems. Specifically, at least 15 years of experience in managing similar scale and complex landfill engineering projects.	15



Specialist	Experience & Qualifications	Years of Experience
	<p>Adequate work experience in Pakistan</p> <p>The Design manager should demonstrate the ability to work with others and lead a project team. The design manager will the entire assignment process and will be responsible for all deliverables, ensuring good quality standards.</p>	
<p><u>Solid waste management specialist</u></p> <p>Civil / Environmental Engineering</p>	<p>Minimum BSc degree in Civil / Environmental Engineering with Strong experience in the design, construction, and operation of sanitary engineered landfills, landfill liner barrier protection systems, and sanitation and leachate management systems.</p> <p>Waste management and urban infrastructure projects</p> <p>At least 3 assignments in similar projects</p>	10
<p><u>Hydro-geologist Expert</u></p>	<p>Minimum BSc degree in Civil/Hydrogeology with sufficient experience in Landfill construction, infrastructure and utilities Surface and ground water investigations, hydrology, hydrogeology.</p> <p>At least 2 assignments in similar projects</p>	10
<p><u>Geotechnical/ Material Engineer</u></p> <p>Civil /Structural engineering</p>	<p>Minimum BSc degree in geotechnical / material / soil engineering with sufficient experience in Landfill constructions and barrier systems materials and specifications</p> <p>Quality assurance and laboratory testing</p> <p>At least 2 assignments in similar projects</p>	10
<p><u>Electro-Mechanical Engineer</u></p>	<p>Minimum BSc degree in electro-mechanical /engineering from accredited university with sufficient experience in Solid waste Facilities, construction & infrastructure.</p>	10



Specialist	Experience & Qualifications	Years of Experience
Road Engineer	Minimum BSc degree in civil / transportation engineering from accredited university with At least 10 years of practical experience in Road construction and upgrade works. Relevant experience to Solid waste constructions & infrastructure	10
Surveyor / CAD operator	Relevant degree from an accredited University Experience in Landfill construction, roads, landscaping & infrastructure At least 2 assignments in similar projects	8
Recycling Expert	Relevant degree from an accredited University Experience in plastics and glass recycling, conversion of recyclable material into products, planning of recycling space, identifying techniques of recycling and involvement of workers and communities in the processes around recycling. At least 2 assignments in similar projects	8

Selection Method.

Selection will be made in accordance with the QCBS method set out in the World Bank Procurement Regulations (Procurement in Investment Project Financing, Works, Non-Consulting and Consulting Services. July 2016 Revised November 2017 and August 2018).