United Nations Children's Fund

WASH Section

Terms of Reference

Long Term Arrangement

for

Design, Supervision and Consultancy Services

November – 2024

1 Introduction

1.1 Background

In the pursuit of creating a better world for every child, UNICEF consistently engages in transformative projects that address the diverse needs of children and their communities. To ensure the success of these initiatives, UNICEF is seeking qualified and experienced design and consultancy services. This document outlines the Terms of Reference (TOR) for prospective partners interested in contributing to the design and implementation of UNICEF projects.

The main requirement of this project is to support UNICEF country offices in the provision of quality services and facilities, as part of their current and future programmes. UNICEF will issue a Request for Proposals (RFP) related to a range of services that are required as part of UNICEF construction activities programmes in Iraq.

1.2 Objectives

The primary objective of this engagement is to secure the services of a reputable design and consultancy firm to collaborate with UNICEF in developing and executing projects that align with our mission to promote the rights and well-being of every child.

2 Scope Of Work

The services include the Preparation of feasibility study, Preliminary Design, Detailed Design, Preparation of draft of terms of reference, Bill of Quantities (BoQ), technical specifications, Monitoring and Evaluation, quality assurance and Supervision works, assisting the Firm in obtaining licenses and permits needed to carry out the services and making available relevant project data and report related to a range of services that are required as part of UNICEF construction activities programmes in Iraq.

The selected firm may also be requested to review and analyze designs that have been prepared by other entities submitted either in the form of hard or soft copies.

These descriptions are for guidance and further details will be provided as part of the particular project requirements when required. Consultants may be requested to provide services for any one or all of these phases depending on the particular project needs. Consultants will not be requested to submit any offers for any implementation for design/engineering works they have completed.

Design Review and Certification

This section outlines the consultancy firm's responsibilities in ensuring all project designs comply with UNICEF's high standards and the relevant internationally recognized engineering standards, essential for projects within Iraq. The firm's role extends to both originating comprehensive project designs and conducting detailed analyses or reviews/checks of designs provided by external entities/ contractors. In both instances, the firm must officially certify the designs, taking full responsibility for the certification's validity and adherence to the specified criteria.

The firm's duties include:

Comprehensive Design and Review: *Whether creating new designs or evaluating those from other sources, the firm will ensure every aspect meets or exceeds UNICEF's stringent standards for quality, safety, accessibility, and sustainability.*

Official Certification: *For every design or review task undertaken, the firm will issue an official certification, affirming that the project design meets all required standards and is fit for implementation. This certification reflects the firm's accountability for the design's integrity and compliance with both UNICEF's expectations and globally accepted engineering practices relevant to the context of Iraq.*

Document Format Considerations
Recognizing the diverse formats in which design documents may be provided, the consultancy firm is equipped to manage scenarios involving hard copy documents. This adaptability may involve additional steps such as digitizing documents for detailed review, which includes format conversion, and possibly the digital reconstruction of design elements for comprehensive analysis.

The services that may be required are as follows:

1. Topographical Surveys and Land Use Survey.
2. Geotechnical/Soil investigation surveys.
3. Hydrology Surveys and hydrogeological surveys.
4. Architectural Services
5. Building Design Services and landscaping design.
6. Environmental Surveys, Assessment, and Permitting.
7. Site Supervision
8. Project Management
9. Feasibility Study, data collection, and analysis including Literature review and analysis of available body of knowledge on a specific topic.
10. Urban Design.
11. Greening for building institutions.
12. Analysis, Design& Study on Water Catchment and harvesting including ponds, barriers, check dams, managed aquifer recharge and storage, remote sensing technologies...etc.
13. Conducting Capacity building for the governmental WASH stakeholders, including various technical, administrative, managerial training, GIS systems and GIS implementation

A certified trainer/co-trainer should be ensured to be available for each type of training.
Reliable source/ Training material, with pre and post-evaluation, along with analytical charts for the training knowledge outcome, are needed to be considered.
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14. Additional Requirements
15. IT and updated technologies for control and monitoring water systems.
16. water and Wastewater systems assessment and upgrading studies and design and biochemical calculations.
17. analysis of efficiency and effectiveness of mechanical components of water and wastewater management systems.

The decision if one or more services of the above will be based on the actual project. These services may be needed, and services may or may not be utilized on each project and the exact nature of the requirements will be agreed on a project-by-project basis. The description of the service requirements is exhaustive, and a more detailed description will be provided for each project.

2.1 Consultants Brief

Section 3.0 provides guidance of the typical phases required during the design and construction of projects. These descriptions are for guidance and further details will be provided as part of the particular project requirements when required. Consultants may be requested to provide services for any one or all of these phases depending on the particular project needs.
The services that may be required are provided within section 4.0 to 12.0.

2.2 Types of Projects

3 Project Phases

Projects are typically managed and separated into a number of phases to clearly define the Consultant 's responsibilities under the contract. These phases are;

Phase 0 – Business case and feasibility
Initial phase is required to identify the need for the project and to examine its feasibility.
Phase 1 – Project options and preliminary design
Development of a preliminary design; sufficient to allow for a cost assessment to be prepared.
Phase 2 – Permits and authorizations.
submission of all applications for permissions/authorizations to the local municipality or others.
Phase 3 – Detailed design and procurement documents
development of the preferred solution to a detailed level suitable to allow for the production of a set BOQs and technical specifications and tender documentation
Phase 4 –procurement process
Consultative technical evaluations of the tender submissions.
Phase 5 – Construction management
Management and supervision of the construction activities
Phase 6 – Closeout
Completion of all closing reports and collating all project data and documenting the entire process including lessons learned.

3.1 Phase 0 – Business Case and Feasibility

The purpose of Phase 0 is to define the purpose, benefit and likely cost of the proposal. The consultant may be required to provide support in the form of surveys, risk assessments or early cost assessment to provide or other tasks as required to develop a feasibility report for consideration and approval by funding sources. The consultant may also be required to provide a summary of the literature review and analysis of an existing body of knowledge specific to a geographical area.

3.2 Phase 1 – Project Options and Preliminary Design

The purpose of this phase is to investigate the options available for identifying a preferred solution. The preliminary design is then carried out on the preferred option. The exact nature and steps of the process will fundamentally depend on the nature of the particular project. The activities within this phase need to be tailored to suit the needs of the project. For example, where the site is well defined and known, the project manager may choose to carry out full topographical surveys upon commencement of the project whereas, if a number of site options are available, the project manager may prefer to purchase locally available mapping as part of the assessment of the options.

This phase has 2 distinct elements. Firstly, this phase is for the project manager to put in place all the activities necessary to programme and manage the planning of the project. Secondly, this phase provides for the assessment of options and the preliminary design of the preferred option.

3.2.1 Design Elements

The preliminary design phase of the project shall develop the UNICEFs requirements with respect to the required content of the completed facilities and any other innovative elements that the UNICEF or Consultant may propose throughout this phase.
All elements including data collection, conceptual design, UNICEF discussions and the completed preliminary design shall be combined in a ―Preliminary Design Report‖. The Preliminary Design Report shall be used to confirm the current status of the design. A set of preliminary design drawings shall be appended to the report detailing the layout of all elements of the new facility.
The Report shall include a preliminary cost assessment of the chosen design option for each site which shall confirm that the cost for the works is projected to be within the project budget.

3.3 Phase 2 – Permits and Authorizations

The purpose of phase 2 is to provide guidance on the processes necessary to ensure that the proposed project is in accordance with local permits, authorizations, and procedural requirements.
The main activities within this phase relate to producing the documentation suitable for submission to the appropriate authority as part of any required local authorization process. The exact nature of the documentation will depend on the processes with the relevant authority.

3.4 Phase 3 – Detailed Design and procurement Documents

The purpose of phase 3 is to prepare the contract package inclusive of the detailed design, specifications and pricing document for the main works, and to prepare the tender documentation in readiness for the phase 4 – Construction Procurement.
This phase represents the first major commitment of the UNICEF to providing the time, personnel and budgetary requirements towards procuring and delivery of the project. During this phase the project design will be developed to a sufficient level of detail that will allow for the detailed preparation of the contract documents required for construction procurement.
In general, the phase may include;

- *Detailed design and drawings*
- *Preparation of the specification and design calculations*
- *Preparation of the pricing document (and associated construction estimates)*
- *Update of the project plan and cost estimates*

3.5 Phase 4 –Procurement process

Phase 4 covers the consultative process of procurement and award of contracts in accordance with the procurement procedures of the organizations. This phase represents the critical stage of the project where proposed bidders are identified, and the process of procurement is carried out and the contract is made ready to award to a successful bidder.
In general, the phase may include;

- *Preparation of the procurement documentation*
- *Consultative Technical Evaluation of offers received*

3.6 Phase 5 – Construction Management

Phase 5 covers the administration and management of the construction phase of the projects through to their completion. The responsibility for the management of all activities in this phase remains with the project manager. The purpose of this phase is to ensure the proper management of the construction of the project, in order to deliver it successfully and meet the required objectives. The activities will also include on-site monitoring and quick responses to any issue arising, to avoid delays and cost increases.
In general, the phase may include.

- *Involvement in certification of all payments*
- *Management and supervision of the construction activities including programme and finance.*
- *Monitoring and day to day site visits (or at an identified frequency)*
- *quality assurance.*
- *Final performance evaluation consultation prior to contract closure.*

3.7 Phase 6 – Close Out

Phase 6 covers the resolution of all outstanding contractual and residual issues relating to the Project and its close-out. It also deals with the review of the project to ascertain the lessons to be learned for future projects.
The key activities of Phase 6 include:

- *Management of the defects period including management of snagging and handover of as-build records.*
- *Close-out of all land and property issues; and*
- *Post-completion review*
    - *Closeout Report*
    - *Financial Report*
    - *Lessons learnt Report*
    - *Performance Evaluation*

4 Topographical Surveys

4.1 General Description

The Contractor shall carry out the survey in accordance with the requirements contained in Section 4.3. However, in the course of the survey, should the Contractor observe additional information that will impact on any future construction works, this shall be included in the survey and the UNICEF informed of the item.
This document contains the standard requirements for the gathering of information in the course of a topographical survey. During the course of the survey, the Contractor shall only be responsible for the gathering of information relative to the area to be surveyed.

4.2 Constraints

- *The Contractor shall liaise with the UNICEF and the relevant authority with regard to access to the site location and shall be bound by any restrictions imposed.*
- *The Contractor shall be responsible for any damage caused to the work or to surrounding areas by the Contractor's operatives or any sub-contractor operating under the delegated authority of the Contractor.*

4.3 Detailed Requirements

4.3.1 Control Points

The survey will be referenced to the national/grid reference system and all levels shall be referenced from the national vertical datum or where this is not available to sea level (if related to sea level, full details of the level shall be included e.g. High tide/low tide).
Permanent ground markers (base control points) known as PGM's will be established on the site. The markers will be established such that they can be utilized as a survey point of reference for the duration of the project. One number PGM shall be positioned at the edge of the site extents with a minimum of two additional PGM's positioned outside the site extents. The positions of the two PGM's outside the site are to be agreed with the UNICEF in conjunction with the relevant governmental authority and should be placed in discrete locations where they will not be a hazard and will not be in danger of being damaged. All PGM's will be surveyed and closed back to the relevant reference datum. The items to be used as PGM's shall be durable and long-lasting.
Details of the PGM's to be used on the Contract shall be submitted to the UNICEF for approval prior to use. Each PGM shall be surveyed separately and closed back to the national survey datum to ensure the compounding of survey error does not occur.
Details relating to the location of each PGM including a detailed description and sketch referencing it to landmarks local to the survey area or a known point shall be included in the survey report.

4.3.2 Survey Detail

The survey detail required by the UNICEF may include but is not limited to the elements contained below. Where the detail of the element is complex, the survey may be supplemented by annotated sketches contained within the survey report to provide more clarity to the element. Such elements shall be cross-referenced between the survey drawing and the report.

4.3.3 Site Boundary

The survey shall detail accurately the precise location of the site boundary. Where there is no site boundary indicated on site, the Contractor may be required to liaise directly with the UNICEF and any third parties to confirm the precise location of the boundary extents to be surveyed as part of the Contract. The Contractor shall contact the UNICEF prior to executing the survey to confirm the approved site boundaries.

4.3.4 Existing Elements

Any existing buildings shall be accurately surveyed with coordinates taken at each corner of the building to provide an accurate layout in plan. Additionally, spot levels shall be taken at each corner of buildings at the building's ground floor level. Where possible, for buildings greater than one story high, levels of upper floors shall also be surveyed. A sketch of the building containing details (estimated if not surveyed) of the building height and elevations shall be included in the survey report.
Street furniture, antennae, bunkers and other building elements located within the site extents shall be surveyed. This shall include, in addition to an accurate survey of the element plan layout, information of the element dimensions (height, width, etc), element use, construction type and any other details relevant to that encountered. Should a complex element (e.g. a sub-station) be encountered, it shall be referred to in detail in the survey report and accompanied by sketch layouts and photographs as required to provide a detailed description. Large elements (buildings, electricity substations, antennas etc) located within 50m of the site boundary shall be surveyed where possible.

Where the recording of accurate survey data is not possible, it shall be approximately indicated on the survey plan noting the inability to accurately survey the element in question.
For fences, the detail shall record the type and height of the fence, the type of posts and wire, and shall record accurate changes in the direction of the fence.
For walls, the survey shall detail the height, width, and construction type including the type of finish, together with the location of pillars, openings, arches, and changes in direction.
Trees shall be recorded and separated into categories depending on the girth of the tree encountered. The girth is measured 1.0m above ground level. The survey shall also record the type of tree. Should they number of trees prohibit the recording of this details (ie for a forest, they shall be defined by a line, appropriately referenced, along the line of the trees around the perimeter.
Ditches, streams, rivers, canals ponds, wells and reservoirs shall be accurately recorded. The survey shall, where possible, record the invert level, the water level and the flow direction where relevant. When shown on the final drawing, the water level shall be accompanied by the date on which the survey took place. Should any high water marks be visible in the vicinity of the water feature, the Contractor shall record the level of such and refer to same in the survey report detailing the location with sketches as required.
Any signage located on or adjacent to the site extents shall be recorded.
Any other items such as bunkers, antennas, water tanks, traffic controls, and domestic commercial and industrial elements, etc shall all be included within the survey.

4.3.5 Transport

All pavements encountered within the site boundary will be accurately recorded and marked on the survey plan. The survey shall contain information of the pavement type, dimensions and where possible the depth of pavement encountered. Where the pavement is in the form of a trafficked road, the position of lines and markings on the pavement shall be recorded. The location and width of the road verge and/or central medians shall be surveyed. Levels shall be required along the road at 10m intervals. All roads shall be identified by name and by the designated road number. The survey shall also include all roadside elements such as barriers (visual, noise, and crash type), curbs (including height), gullies, channels, and roadside furniture.
Where railroads are encountered, the level shall be taken at the top of the rail at 25m intervals and the locations of any special elements such as switches and crossings and insulated block joints shall be indicated along with the approximate beginning and end of sections of cant (super elevation). Sketches of the rail type and other relevant details shall be detailed in the survey report.

4.3.6 Ground Levels

The survey of the existing ground contours shall extend 20m outside the site extents (where the area is unrestricted). This shall indicate the general ground terrain within the site and should detail accurately all changes in grade such as the tops of hills and bottoms of hollow areas. Contours shall be interpolated on the drawings at 0.2m intervals with a more prominent layer type and color used for every 1m change in level. Where side slopes are encountered, slope symbols shall indicate the fall of the slope.
Spot levels shall be shown on the drawing on an approximate 10m square grid and referenced on the output drawing directly (this does not replace the requirement for additional spot levels to enable the generation of contours). Spot levels are also required at distinct changes in grade.

4.3.7 Drainage and Sewerage

All pipes drainage, channels, and sewers (both above and below ground) shall be recorded. Where existing chambers are encountered, the survey shall record both the cover level and invert level(s) of the chamber and include details of chamber construction, diameter of pipes, and type of pipes connecting to it.
For drainage elements, the nearest outlet of the drainage shall be recorded. All drainage outlets within 30m of the outside edge of the site extents shall be recorded.
Notwithstanding this, the Contractor shall identify at least one suitable available outfall point for the discharge of stormwater run-off from the site.

4.3.8 Utilities

All utilities both above ground and below ground (below recorded by scanner tool) shall be surveyed including the location of chambers and changes of direction. This shall include all water mains, gas lines, electricity, communications, and any other services. All chambers shall be identified and recorded (e.g. in the case of water mains all hydrants, air valves, sluice valves, scour valves, etc shall have their own identifier.
For underground services, the survey shall record the utility found, its location, approximate depth and direction leaving the site extent. For overhead services, the position of poles, the height of the service and direction leaving the site extents shall be recorded.
Where the utility is unknown, the Contractor is expected to source the required information from the relevant local authority.

4.3.9 Accuracy

The detail will be accurate to the following tolerances when referenced from the nearest.
PGM

- *Horizontal Accuracy ± (plus or minus) 25mm cm*
- *Vertical Accuracy ± (plus or minus) 15mm cm*

4.3.10 Drawings

An electronic copy of the surveys will be provided to UNICEF in AutoCAD 2D and 3D file format (AutoCAD 2007.dwg version). Additionally, an electronic ―hard copy‖ of the drawing in Adobe PDF format will be issued complete with title block, legends etc.
Where requested by the UNICEF, hard copy paper versions of the drawing shall be issued in A1 size (841mm x 594mm sheet) at a suitable scale to be agreed. Depending on the scale agreed, the survey may extend over more than one A1 sheet.
The Contractor shall ensure that each individual element or group of elements (e.g. utility, wall, spot height) that gets surveyed is contained on a separate layer. These layers shall be named identifying the element in question thus enabling various elements surveyed to be turned off by the UNICEF as required.

4.3.11 Survey Report

The survey report and drawings shall be submitted to the UNICEF in the English language. Where the information has been gathered in a language other than English, the Contractor shall include an English translation of all such information in the report and a copy of the information in the original language included as an addendum to the report

The Contractor shall submit a report of the survey carried out. This shall include details of the locations of PGM's (to include coordinates, sketches and photos), a summary of the survey carried out including the elements encountered and a report of the closure of the survey to the reference datum to verify its accuracy. The report shall also confirm details of the current drainage layout on the site with respect to drainage falls and facilities for out falling of drainage.
The Contractor shall take photographic records of the survey location. All photographs shall be taken in digital format using a digital camera with a minimum of 3-million-pixel resolution shot at the highest resolution and saved in —JPEG‖ format with a minimum size of 2048 x 1536 pixels. The photographs shall be appropriately tagged identifying the date, location (grid ref) and object being photographed. The photographic record will be provided in both hard copy format, contained within an annex to the survey report, and electronic format (on compact disk in —JPEG‖ format).
The report shall be submitted in —soft copy‖ format in Microsoft Word and where necessary Microsoft Excel (version 1997-2003) format and in Adobe PDF (electronic paper copy) format.
Where requested by the UNICEF, the Contractor shall also submit a —hard copy‖ (paper) version of the report (max 3 no. copies).
For the avoidance of doubt, and in respect of contractual obligations, the PDF copy (electronic paper format) of documents and drawings shall be the contractually binding copy of the output information. Documents in other formats (Microsoft Word, AutoCAD Microsoft Excel) shall be provided to the UNICEF for —information only.

5 Geotechnical Surveys

5.1 General Description

The Consultant will be responsible for the development and management of any Ground Investigation (GI) contracts that are required to support the particular project. The Consultant shall agree with the UNICEF the specifications and standards to be applied as part of the development of the GI scope of works prior to carrying out the works. The Consultant will be responsible for all liaison with 3rd parties and for coordination of all the GI Contractors activities as described below.

5.2 Constraints

- *The Consultant shall liaise with the UNICEF with regards to access to the site location and shall be bound by any restrictions imposed. In the event of a restriction being imposed by the authorities the Consultant shall inform the UNICEF within 24 hours.*
- *The Consultant shall be responsible for any damage caused to elements outside of the site extents by the GI Contractors operatives or any sub-contractor. All excavations opened as part of the work shall be backfilled completely to the satisfaction of the UNICEF after investigations have taken place.*

5.3 Detailed Requirements

As detailed in Section 5.2, there may be access constraints to the work site, details of which will be forwarded to the GI Contractor prior to beginning work.
The UNICEF requires that the Consultant establishes the following details as part of the GI Contract, at a minimum

- *Detailed soil characteristics for the full depth of each borehole/trial pit*
- *Bearing capacity of the soil*
- *Groundwater level*
- *Depth to bedrock*

- *Depth of differing soil layers*
- *Assessment of the potential for aggressive attack by the soil on concrete and steel*
- *Assessment as to the presence of any contaminated soil*
- *Study on seismic vulnerability and underlying ground conditions.*

The ground conditions shall be determined by sinking boreholes, excavating trial pits and in situ tests, obtaining disturbed and undisturbed soil samples, and taking measurements of groundwater behavior.

All testing of ground conditions shall be carried out in accordance with the British Standard BS 5930:1999 ―Code of Practice for Site Investigations‖, and/or ASTM Standard D 420-98 (2003) ―Standard Guide to Site Characterization for Engineering Design and Construction Purposes‖ or an internationally recognized equivalent. If an alternative standard is to be used, the Consultant shall forward a copy of the relevant standard to the UNICEF, for approval, prior to commencing work on site.

All reports, borehole records, graphs, and drawings shall be submitted to the UNICEF in the English language. Where the information has been gathered in a language other than English, the surveyor shall include as part of the report a certified English translation of all such information.

5.4 Specification

5.4.1 General

- *The Consultant shall check for the location of existing services prior to commencing any intrusive works at the site. This shall be done in liaison with the UNICEF.*
- *At all times it shall be ensured that exploration works does not impact on areas adjacent to the site.*
- *The commencing level for the Works shall be taken as existing ground level.*
- *Trial pits and boreholes shall be carried out ensuring the avoidance of surface water inflow into the borehole.*
- *The borehole location shall be recorded by GPS co-ordinate's location (Decimal Degrees) and detailed on a site plan (the scale of which shall be submitted to the UNICEF for approval) of the site and on the borehole / trial pit logs. These locations shall be to an accuracy of 0.5m. In relation to trial pits, the co-ordinate shall be at the center of the trial pit.*
- *All logging of results shall be carried out in accordance with BS5930, ASTM D 543409 or other internationally recognized standards, to be approved by the UNICEF, and shall be recorded by an experienced Geotechnical Engineer.*
- *Excavations shall be backfilled with the excavated material compacted in layers. The GI Contractor shall ensure that the site is returned to the condition that it was on arrival to the satisfaction of the UNICEF, reasonably expected disturbance to the excavated areas accepted.*
- *The GI Contractor is responsible for the safety and stability of the Works, and of all operations on the Site connected with the Works, including temporary works.*
- *The GI Contractor shall also erect, maintain and remove at the completion of the Works, any temporary support that may be required for the protection of the site or adjoining property.*
- *The Consultant and GI Contractor must implement the works according to best practice as adjudged by the UNICEF.*
- *From when the UNICEF provides the GI Contractor access to the Site, the GI Contractor must: as far as practicable, secure the site and keep off the site persons not entitled to be*

there; keep the site in good order and free from unnecessary obstructions; as far as practicable, secure the safety of persons on the Site and protect them and users, owners and nearby areas from hazards and interference resulting from the Works and as far as practicable, ensure that the GI Contractor's

- *Personnel and the Works do not unnecessarily or improperly*
    - *cause a nuisance or inconvenience to the public or users, owners, occupiers of land, roads, or footpaths on or near the Site, or*
    - *interfere with the use of land, roads, or footpaths.*
- *The UNICEF may instruct the Consultant to suspend all or part of the Works. The Consultant must, during the suspension, arrange to protect, store, and secure the affected Works and maintain the insurance required by this Contract. The Consultant must resume the Work promptly after the UNICEF instructs.*

5.4.2 Trial Pits

- *Trial pits shall be excavated utilizing machinery of a size suitable for access to the site and to the approval of the UNICEF.*
- *The GI Contractor shall ensure that all sides of trial pits are sloped back or adequately supported to prevent the risk of inundation of the excavation.*
- *As part of the activities carried out within the works, the GI Contractor shall calculate the percolation rate of the soil.*

5.4.3 Boreholes

- *The borehole rig used on the site shall be capable of sampling up to a depth of 10m below ground level.*
- *Boreholes shall be of sufficient diameter to enable the extraction of suitable undisturbed samples (minimum borehole diameter 150mm).*
- *Where boreholes pass through permeable strata, they shall be lined with suitable liners that shall be maintained within the borehole until all required samples have been taken.*
- *Samples shall be taken of all strata passed and at a minimum of one-meter intervals.*

5.4.4 Water Monitoring

- *Ground water level shall be assessed throughout the site to develop an indication of the water table level.*
- *During normal testing activities and in the event of groundwater being present, the level at which it is struck shall be noted and the standing water level recorded. As the groundwater level rises, the approximate rate at which it rises should be measured.*
- *Should the water level not be identified through the normal borehole testing (i.e. at ≤ 10.0m), the Contractor shall, at one location within the site extents, establish accurately the level at which groundwater is present on the site and record in full the details of same.*

5.5 Testing

All testing shall be carried out by a material's testing laboratory certified in accordance with ISO/IEC 17025: 2005 (on national certification, where not available) to carry out the specified tests. Such a laboratory shall be certified as complying with the requirements of ISO/IEC

17025:2005 by a national or international accreditation board. A copy of the accreditation documentation confirming the laboratory's certification for carrying out the required tests shall be forwarded to the UNICEF prior to signing the Contract.

5.6 Deliverables

5.6.1 Site Investigation Report

The site investigation report shall be submitted in draft format to the UNICEF for review and comment. On receiving approval from the UNICEF to proceed, the Consultant shall submit the final report.
The report shall be submitted in ―soft copy‖ in Microsoft Word and where necessary Microsoft Excel (version 1997-2003) format and in Adobe PDF (electronic paper copy) format. Where requested by the UNICEF, the Contractor shall also submit a ―hard copy‖ (paper) version of the report
The report shall contain but shall not be limited to the following headings:

- *Introduction*
- *Scope of Work*
- *Ground Conditions*
    - *Soil Characteristics (as per ASTM / BS Requirements)*
    - *Regional Geology including seismic considerations.*
    - *Site Observations*
    - *Groundwater*
    - *Obstructions encountered.*
    - *Aggressive Soils*
    - *Miscellaneous*
- *Geotechnical Design Criteria for a new structure at the site*
    - *Development Description (if received)*
    - *Site Preparation*
    - *Foundations*
    - *Earthworks*
    - *Pavement Works*
- *Conclusions and Recommendations*

The GI Contractor shall take photographic records of each borehole/trial pit location both before and after the borehole or trail pit commence and complete. All photographs shall be taken in digital format using a digital camera with a minimum of 3 million pixel resolution shot at the highest resolution and saved in ―JPEG‖ format with a minimum size of 2048 x 1536 pixels. The photographs shall be appropriately tagged identifying the date, location and trial pit / borehole reference being photographed. The photographic record will be provided in both hard copy format, contained within an annex to the site investigation report, and electronic format (on compact disk /and or portable hard drive in ―JPEG‖ format).
As an appendix, the report shall contain a map of the site with the actual locations of the boreholes/trial pits detailed upon it with co-ordinates. This shall be accompanied by a referenced sheet containing co-ordinates of all the testing locations. The Contractor shall validate the accuracy of the co-ordinates given prior to issuing the report.
All geotechnical results obtained during the site visit shall be included as a second appendix to the report. An additional appendix shall also include background information on the geological aspects of the areas referenced elsewhere in the report.

6 Hydrological Surveys

The Consultant shall undertake a Hydrological Investigation for the Project where required, and submit a report, drawings, calculations, and model files (in a digital format approved by The UNICEF) for consent. The investigation shall include, but not be limited to, the following:

1. *Rainfall including collection and analysis of rainfall data.*
2. *The groundwater table fluctuations*
3. *Existing drainage conditions, identifying catchment and sub-catchment areas, collection areas, existing drainage facilities, and flood impact on the site and from all contributing areas.*
4. *Impact assessment for storm return periods, as per local standards and guidelines.*
5. *Drainage Model that shows all assumptions, graphs, charts, and calculations, together with proposed drainage facilities and networks. This shall be presented in report form.*
6. *The Consultant shall assess the feasibility of localized water retention and detention areas in landscaped, park, or other areas, in addition to Emergency Flood Areas, at the discretion of the UNICEF.*
7. *The Consultant shall utilize existing mapping, where available, to illustrate his representation.*
8. *The design for surface water drainage shall consider environmental sustainability.*
9. *Levels of groundwater for design purposes. Including design and setup of remote sensing data collection and analysis.*

7 Architectural Services

Architectural services cover all aspects of building design and architecture where the types of buildings require specific design consideration by an Architect, typically this would include accommodation, compound, and agency facilities.

7.1 Detailed Requirements

The Consultant maybe required to provide all or parts of the following activities which included but are not limited to:

- *Consultation, at project outset, with the UNICEF to identify the project requirements and constraints.*
- *Assessment of the proposed site and its current conditions (including existing*
- *building, services, utilities, infrastructure and ancillaries) to confirm its suitability for the project proposed.*
- *Selection, appointment and management of the services of third parties, with the approval of the UNICEF, for the execution of any specialist assessment, investigative works and any other third party services required (topographic, geotechnical surveys etc.);*
- *Identification, preparation, and if requested by the UNICEF, submission of the necessary permits and statutory approvals required in order to complete the project.*
- *Execution of the design and provision of deliverables in accordance with this scope of work.*
- *Liaison with the UNICEF and any other stakeholders to the project including any liaison that may be required with other third parties from time to time,*
- *Prepare a detailed projected construction programme for the project identifying the likely timeline for the project construction phase and including project milestones.*
- *Provision of, at preliminary and detailed design stages, cost estimates for the project, based on the relevant schedules of quantities and reflecting local rates, to be utilized to scope the*

project within the available project budget and as a reference document for the assessment of prices submitted to construct the project;

- *Provide detailed specifications for works, materials, equipment and methods to enable the Contractor's to construct the project.*
- *In addition, the Consultant maybe required as part of the scope of work to undertake activities related to Phase 4 and 5 of the project phases as described in the RFP.*
- *This will include but is not limited to:*
- *Provide input at Project Tender Stage, as required, to answer queries from the*
- *Construction Contractors, to make any necessary alterations to the design and to*
- *provide input into the assessment of the Construction Contractor's tender submissions;*
- *Provision of assistance and technical expertise throughout the construction phase of the project when required, to respond to Contractor's queries, to resolve design issues on site and alter elements of the design, if requested, in accordance with the requirements of this scope of work;*
- *Supervise the construction of the project through to the issue of the certificate of substantial completion and beyond, as required by the UNICEF;*
- *Provide input and assistance into the completion of project as-built drawings;*
- *Provide input and assistance into the completion of project financial final accounts;*
- *Ensure that the production of the design and the completion of the construction is executed in accordance with national and international health & safety standards.*
- *Ensure that all design and construction is completed to internationally recognised quality standards.*
- *Any other duties consistent with the normal roles and responsibilities of a Contractor.*
- *In general, the design work should be such that it fits the objective of the project and portray a positive image of the UNICEF to the surrounding host community. The design should consider key elements such as:*
- *Safety & security according to the requirements of the UNICEF Security*
- *Internal infrastructure such as connection to services including water supply, electricity, telecom and sewerage.*
- *Internal & external parking as per the specific design requirements*
- *Provision for generator room, drivers 'room, controlled access gate etc*

7.2 Specifics

7.2.1 Architectural Design Requirements

The principal project objectives for architectural design are as follows:

- *The facilities should be aesthetically pleasing and appropriate for the planned usage.*
- *The project is to provide a safe environment for the users and enable them to carry out their duties / activities efficiently and without any distractions.*
- *The project design (especially of schools) should even be:*
    - *child-friendly*
    - *Ensuring that all project designs and implementations are accessible and inclusive, particular attention will be paid to the needs of individuals with disabilities. This includes the integration of universal design principles and adherence to international standards such as ISO 21542:2011 and the principles of the United Nations Convention on the Rights of Persons with Disabilities (CRPD), to guarantee*

that facilities and services are usable by everyone, regardless of their physical abilities

- *take into consideration social and cultural aspects and all other specificities of the geographical area, country or region where the project will be implemented.*

- *The design should be based on sustainability principles and making best use of nationally available materials, Involving, as much as possible, available resources in the community, technologies and skill sets.*
- *The design should give consideration to environmental aspects and where applicable existing green trees and green areas should be retained as much as feasible. Where directed by the UNICEF and feasible adequate landscaping should be planned to enhance the overall aesthetic value of the facilities. The use of greening technologies and energy optimization shall be highly encouraged.*
- *The project is expected to demonstrate innovative ideas for efficient use of space, materials and building concepts to achieve the project requirements and take into account international and national standards.*

7.3 Scope Of Work

7.3.1 Phase 1 – Options design

This design stage shall include data collection and option design activities which are briefly summarized in table 7.1 below:

Table 7.1 – Architectural Phase 1 Option design activities

Activity	***Sub-activity***	***Requirements***
Data collection	*Topographical survey*	*Management of surveys in accordance with the requirements provided in Section 4.0*
	Geotechnical survey	*Management of surveys in accordance with the requirements provided in Section 5.0*
	Utility survey	*Surveys may be required to assess the condition of all utility services present at the site. This shall assess the condition of connections, any extensions required to bring the services to the site and the likely capacity of the services to serve the requirements of the UNICEFs, or otherwise shall confirm sufficiency of available services with reference to the requirements. It shall also confirm the location of any existing services crossing the site.*
	Seismic design considerations	*Management of, or preparation of any seismic design or analysis as detailed in*

Activity	*Sub-activity*	*Requirements*
		section 9.0
	Climate information	*The Consultant shall assess and mitigate through the design the impact of potential climatic events at the given location (e.g. wind and snow loading, flooding risks etc.)*
	National and local Bylaws and best practices	*The Consultant shall obtain and review national and local requirements and guidelines that need to be considered for architectural and structural design of the facility. For development of concept design of the facility, these requirements shall be coordinated with the UNICEF's requirements, and International best practices for office spaces.*
	Project Information	*The Consultant shall identify local market conditions, including but not limited to material, technologies and contractor local capacity.* *The Consultant should also identify local socio-political and cultural considerations (cultural and religious aspects which might have an impact on the design and use of a building)*
	Permits	*The Consultant shall research and confirm details relating to the permits that will be required to complete the construction of the Project. The Consultant shall prepare a summary document highlighting the information gained and relevant procedures to be followed to obtain all permits for the Project, and time requirements to obtain such permits. All applications for permits shall be prepared by the Consultant with the UNICEF being notified when they are ready for submission. The Consultant shall not submit permits on the UNICEFs behalf unless confirmed in writing by the UNICEF.*

	Reporting	***Progress meeting:*** *One or more meetings with the UNICEF may be required at this stage to let the Consultant be fully informed about UNICEF's needs and expectations. The Consultant shall be required to attend.*
Activity	***Sub-activity***	***Requirements***
		Summary report: *The Consultant shall carry out a review of the information arising from the completion of activities outlined above. All data collection information and output shall be brought together in the form of a report. The report shall be included as part of the concept design submission to the UNICEF*
Options design	*Design option development (min. of 3 options)*	*The design of each option shall comprise of the following or as detailed in the particular project brief:* *General layout* *Access information including road, parking etc* *Floor plans and building circulation* *Exterior elevations, rendering and color palette* *Critical building sections and details*

Activity	*Sub-activity*	*Requirements*
Preliminary design	*Preparation of architectural design elements*	*Site plans including boundary elements, paving layouts, traffic circulation, external lighting, and locations for security cameras* *Lighting, signage and utilities* *Structural, Civil, Architectural floor plans for main buildings as well as adjacent buildings such as security check post, drivers' room, vehicle shed, water tank* *General drainage and stormwater drainage plan* *MEP and Fire Protection details* *Landscaping* *Exterior elevations, rendering and color palette* *Building sections and details* *Interior elevations, casework, and millwork elevations* *Internal space allocation/arrangement of workstations, common office services, etc., details of which shall be discussed and agreed upon with the UNICEF during the design stage*
	Preparation of the preliminary design report	*The report shall cover:* *All elements including data collection, conceptual design, UNICEF discussions and the completed preliminary design* *Confirmation of the current status of the design.* *Preliminary design drawings* *Preliminary cost assessment of the chosen design option* *Presentation to the UNICEF*
	3D rendering of the preliminary design	*3D renderings of external (3 minimum) and internal facility layout of the proposed design The renderings may be prepared on minimum ISO A1 size sheets; in both hard paper and soft electronic formats.*

Any other such details as the Consultant or UNICEF may deem relevant shall also be included. The UNICEF shall assess the proposed designs and discuss their content with the Consultant. One of the concept designs proposed, incorporating any comments by the UNICEF, shall be then implemented on the project as a whole and brought forward to the Preliminary design stage for development. The Consultant shall propose a schedule of data to be prepared for the project preliminary design stage which shall be to the approval of the

7.3.2 Phase 1 Preliminary Design

The design option to be progressed shall be the UNICEF-approved option.
During the preliminary design stage, the Consultant shall develop the UNICEF's requirements with respect to the requirements for the completed facilities and any other innovative elements that the UNICEF or Consultant may propose throughout this stage. During this stage, the consultant shall develop the details in table 7.2 below;

Table 7.2 – Architectural Phase 1 Preliminary design activities

Activity	***Sub-activity***	***Requirements***

7.3.3 Phase 3 – Detailed Architectural Design

Following the completion of the Preliminary Design Stage, the Consultant shall, on receipt of such an instruction from the UNICEF proceed with the detailed design in accordance with the details in table 7.3 below

Table 7.3 – Architectural Phase 3 Detailed design activities.

Activity	***Sub-activity***	***Requirements***
Detailed design	*Development of detailed design*	*Further development and finalization of the architectural elements provided in the previous section based on UNICEF input to the level that is constructible and can be accurately priced.* *Final presentation to the UNICEF*

	Preparation of final detailed design package	*Complete set of architectural, structural, MEP and joinery drawings including plan layouts, elevations, sections, typical and specific details required to enable a contractor to construct the works. These drawings shall be presented on UNICEF title blocks.* *Architectural perspectives and details of all external and internal building elements with details of all finishing, case work, mill works* *Landscaping design where and as required;* *Layout showing planned work spaces, arrangement of furniture and office equipment etc as directed by the UNICEF;* *All design specifications, wiring diagrams, material details and plant specifications required to compliment the drawings;* *Schedules of quantities, separated for each element of the works, in a format to the approval of the UNICEF, compiled to enable a tendering contractor to accurately price the Project;* *All relevant background information required by the Contractor in order to proceed with the construction of the works (issued for information only);* *A report detailing any health and safety risks inherent in the design;* *Completed application documentation for any permits/approvals required; and*
Activity	***Sub-activity***	***Requirements***
		An Engineer 's estimate or detailed cost estimate that may be used as a reference to evaluate the proposed bid prices received for the works; *A full suite of contract documentation (Note, the UNICEF may provide some elements such as conditions of contract and capacity assessments).*

Additional supplemental activities as directed by the UNICEF	*Preparation of final cost estimate if directed by the UNICEF as per the requirement covered elsewhere in the RFP* *Preparation of final construction programme if an as directed by the UNICEF as per the requirement covered elsewhere in the RFP*

8 Building Design Services

Building design services covers all aspects of building design including (but not limited to) Structural works, Civil Design, Mechanical and Electrical works, fire and security design amongst others. This scope also includes for works such as irrigation, drainage, water supply and sewage works.

The Civil Works elements associated with the projects listed in section 2.2 which may include the following, non-conclusive list of works;

- *Geotechnical Design*
- *Design of earthworks*
- *Utility diversions*
- *Drainage works*
- *Access roads*

8.1 Structural and Civil Works

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant maybe required to provide all or parts of the following activities which include but are not limited to:

- *Consultation, at project outset, with the UNICEF to identify the project requirements and constraints;*
- *Assessment of the proposed site and its current conditions (including existing building/ structures, services, utilities, infrastructure and ancillaries) to confirm its suitability for the project proposed;*
- *Selection, appointment and management of the services of third parties, with the approval of the UNICEF, for the execution of any specialist assessment, investigative works and any other third party services required (topographic, geotechnical surveys etc.);*
- *Identification, preparation, and if requested by the UNICEF, submission of the necessary permits and statutory approvals required in order to complete the project;*
- *Execution of the design and provision of deliverables in accordance with this scope of work;*
- *Liaison with the UNICEF and any other stakeholders to the project including any liaison that may be required with other third parties from time to time*
- *Prepare a detailed projected construction programme for the project identifying the likely timeline for the project construction phase and including project milestones;*
- *Provision of, at preliminary and detailed design stages, cost estimates for the project, based on the relevant schedules of quantities and reflecting local rates, to be utilised to scope the project within the available project budget and as a reference document for the assessment of prices submitted to construct the project;*
- *Provide detailed specifications for works, materials, equipment and methods to enable the Contractor's to construct the project.*

- *Ensure that the production of the design and the completion of the construction is executed in accordance with national and international health & safety standards.*

In addition, the Consultant maybe required as part of the scope of work to undertake activities related to Phase 4 and 5 of the project phases as described in the RFP.

This will include but is not limited to:

- *Provide input at Project Tender Stage, as required, to answer queries from the Construction Contractors, to make any necessary alterations to the design and to provide input into the assessment of the Construction Contractor's tender submissions;*
- *Provision of assistance and technical expertise throughout the construction phase of the project when required, to respond to Contractor's queries, to resolve design issues on site and alter elements of the design, if requested, in accordance with the requirements of this scope of work;*
- *Supervise the construction of the project through to the issue of the certificate of substantial completion and beyond, as required by the UNICEF;*
- *Provide input and assistance into the completion of project as-built drawings;*
- *Provide input and assistance into the completion of project financial final accounts;*
- *Ensure that construction is completed to internationally recognised quality standards.*
- *Ensure that the production of the design and the completion of the construction is executed in accordance with national and international health & safety standards.*
- *Any other duties consistent with the normal roles and responsibilities of a Contractor.*

In general, the design work should be such that it fits the objective of the project and portray a positive image of the UNICEF to the surrounding host community. The design should consider key elements such as:

- *Safety & security according to the requirements of the UNICEF Security*
- *Internal infrastructure such as connection to services including water supply, electricity, telecom and sewerage*
- *Internal & external parking as per the specific design requirements*

8.1.1 Structural & Civil Works Design Requirements

The principal project objectives for building design are as follows:

- *During the planning and design phase, an optimum structural & civil design should be developed considering all the essential aspects of a structure such as: durability, functionality and cost efficiency.*
- *The design shall factor in all the country-specific geographical hazards such as Seismic analysis and design.*
- *The design shall consider the latest updates of nationally recognized design and construction standards during all the phases of the project.*
- *The design should take into consideration sustainability principles making the best use of nationally available materials, technologies, and skill sets.*
- *The design should give consideration to environmental aspects and where applicable existing green trees and green areas should be retained as much as feasible. The use of greening technologies and energy optimization shall be highly encouraged.*
- *The project is expected to demonstrate innovative ideas for efficient use of space, materials, and building concepts to achieve the project requirements.*

8.1.2 Phase 1 Option Design

The Option design stage shall include data collection and concept design activities which are briefly summarised in table 8.1 below:

Table 8.1 – Structural Phase 1 Option design activities

Activity	***Sub-activity***	***Requirements***
Data collection	*Topographical survey*	*Management of surveys in accordance with the requirements provided in Section 4.0*
	Geotechnical survey	*Management of surveys in accordance with the requirements provided in Section 5.0*
	Utility survey	*Surveys will be required to assess the condition of all utility services present at the site. This shall assess the condition of connections, any extensions required to bring the services to the site and the likely capacity of the services to*

Activity	***Sub-activity***	***Requirements***
		serve the requirements of the UNICEFs, or otherwise shall confirm sufficiency of available services with reference to the requirements. It shall also confirm the location of any existing services crossing the site.
	Seismic design considerations	*Management of, or preparation of any seismic design or analysis as detailed in section 9.0*
	Climate information	*The Consultant shall assess and mitigate through the design the impact of potential climatic events at the given location (e.g. wind and snow loading, flooding risks etc.)*
	National and local bylaws and best practices	*The Consultant shall obtain and review national and local requirements and guidelines that need to be considered for the structural design. For development of concept design, these requirements shall be coordinated with the UNICEF's requirements, and International best practices relevant to the project.*

	Permits	*The Consultant shall research and confirm details relating to the permits that will be required to complete the construction of the Project. The Consultant shall prepare a summary document highlighting the information gained and relevant procedures to be followed to obtain all permits for the Project, and time requirements to obtain such permits. All applications for permits shall be prepared by the Consultant with the UNICEF being notified when they are ready for submission. The Consultant shall not submit permits on the UNICEFs behalf unless confirmed in writing by the UNICEF.*
	Reporting	*Progress meeting: There may be the possibility to have one or more meetings with the UNICEF at this stage to let the Consultant be fully informed about UNICEF's needs and expectations. The Consultant shall be required to attend.* *Summary report: The Consultant shall carry out a review of the information arising from the completion of activities outlined above. All data collection information and output shall be brought together in the form of a report. The report shall be included as part of the concept design submission to the UNICEF.*
Activity	***Sub-activity***	***Requirements***
Option Layouts	*Option layouts*	*The Consultant shall prepare a number of layout showing the positioning of all major project components for UNICEF's review. Alternately, the UNICEF may provide the general layouts to Consultant for further development. These option designs shall comprise a plan layout and some concept perspective views of the selected site and any other such details as the Consultant or* *UNICEF may deem relevant*
	Cost estimates	*The Consultant shall provide at this stage a cost estimate based on the site layouts, market rates relevant to the project site and previous relevant experience.*

Option Design	*Design option development (min. of 3 options)*	*The design for each option shall comprise of:* *General layout* *Critical sections of the structure and views showing the dimensions of structural elements.* *Existing utilities layout, identification of conflict areas and relocation requirements* *Civil works layout and arrangements including relation to external roads and services, internal road arrangements, parking arrangements, drainage etc* *Provision of detailed information regarding the material used and its' properties.* *Provision of design criteria with all the standards, parameters and factors utilised and/or assumed for designs*
	Option design report	*Summary report: The Consultant shall carry out a review of the information arising from the completion of activities outlined above. All data collection information and output shall be brought together in the form of a report. The report shall be included as part of the option design submission to the UNICEF*

Any other such details as the Consultant or UNICEF may deem relevant shall also be included. The UNICEF shall assess the proposed options designs and discuss their content with the Consultant. One of the designs proposed, incorporating any comments by the UNICEF, shall be then implemented on the project as a whole and brought forward to the Preliminary design stage for development. The Consultant shall propose a schedule of data to be prepared for the project preliminary design stage which shall be to the approval of the UNICEF.

8.1.3 Preliminary Structural & Civil Works Design

The design option to be progressed shall be the UNICEF-approved option.

During the preliminary design stage, Consultant shall develop the UNICEFs requirements with respect to the requirements for the completed facilities and any other innovative elements that the UNICEF or Consultant may propose throughout this stage. During this stage, the consultant shall develop the details given in table 8.2 below.

Table 8.2 – Structural Phase 1 Preliminary design activities

Activity	*Sub-activity*	*Requirements*
Preliminary design	*Preparation of structural & civil design elements*	*Structural plans for all the structural elements and all associated works including civil works, MEP etc as applicable.* *Structural sections and details, showing clearly the dimensions of all structural elements and the material type (all basic material properties have to be provided).* *Diagram showing the development of internal forces developed within all the structural elements.* *Civil works plans including general arrangements, sections, elevations, plans, details related to all associated utilities, roads, parking, drainage etc.* *Simulation of structure response (indicating software used).* *Outline of assumptions made during calculations* *Preliminary cost assessment*
	Preparation of the preliminary design report	*The Consultant shall carry out a review of the information arising from the completion of activities outlined above. All data collection information and output shall be brought together in the form of a report. The report shall be included as part of the preliminary design submission to the UNICEF.*

8.1.4 Phase 3 – Detailed Structural Design

Following the completion of the preliminary design stage, the Consultant shall, on receipt of such an instruction from the UNICEF proceed with the detailed design in accordance with table 8.3 below.

Table 8.3 – Structural Phase 3 design activities

Activity	*Sub-activity*	*Requirements*

	of *Development detailed design*	*Further development and finalisation of the structural and civil elements provided in previous section based on UNICEF input to the level that is constructible and can be accurately priced.* *Final presentation to the UNICEF.*
Detailed Design Stage	*Content of final detailed design package*	*Complete set of structural and civil drawings including plan layouts, elevations, sections, typical and specific details required to enable a contractor to construct the works. These drawings shall be presented on UNICEF title blocks.* *The Consultant shall complete the detailed design of all project components and shall provide the detailed drawings with complete works specifications complete with materials, method statements, and processes to complete the works.* *All design specification and material details required to compliment the drawings.* *Schedules of quantities, separated for each element of the works, in a format to the approval of the UNICEF, compiled to enable a tendering contractor to accurately price the Project* *All relevant background information required by the Contractor in order to proceed with the construction of the works (issued for information only).* *A report detailing any health and safety risks inherent in the design.* *Completed application documentation for any permits/approvals required.* *An Engineer's estimate or detailed cost estimate that may be used as a reference to evaluate the proposed bid prices received for*
Activity	***Sub-activity***	***Requirements***
		the works. (If directed by the UNICEF as per the requirement covered elsewhere in the RFP.) *A full suite of contract documentation (Note, the UNICEF may provide some elements such as conditions of contract and capacity assessments).*

	Additional supplemental activities as directed by the UNICEF.	*Preparation of final cost estimate if directed by the UNICEF as per the requirement in section 11.5* *Preparation of final construction programme if as directed by the UNICEF as per the requirement covered elsewhere in the RFP.*

8.2 IRRIGATION SYSTEMS

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant maybe required to provide all or parts of the following activities for the design of the irrigation system which include but are not limited to:

1. *Determine water needs:*

    a) *Evaluate current agricultural needs,*
    b) *Estimate available lands for agriculture,*
    c) *Estimate farmers'agricultural capacities,*
    d) *Determine most adequate type of agricultural production for the area*
    e) *Determine future agricultural production needs*
    f) *Perform water quality analysis at the intake and assess if the water can be used for the required purposes.*

2. *Evaluate water balance on the basin*

    a) *Evaluate hydrological date on the basin (average monthly rainfall, monthly temperature, average monthly evaporation, average monthly evapotranspiration, monthly runoff, peak flows, minimum flows).*
    b) *Determine monthly water supply,*
    c) *Determine average available monthly flow on the basis of hydrological data,*
    d) *Determine 75% occurrence flow rates*
    e) *In case of Dams and reservoirs, determine monthly water volumes considering intake flows, environmental flows, losses, etc.*
    f) *Determine minimum and maximum water needs according to agricultural projections, type of crops, agricultural land areas, etc.*
    g) *Determine sediment transport rates in the basin and assess mitigation measures for the effect that Dams, intakes and other structures will have on the river.*

3. *Detailed design*

a) *Perform a detailed topographical survey that includes topographical information of major works and structures in the irrigation system (dam, spillway, adduction and main channels, hydraulic structures, distribution channels, etc.)*

b) *Follow through a geological and geotechnical study in main hydraulic structures and irrigation channels.*

c) *For hydraulic design of Dams (if applicable);*

   i. *Determine maximum storage volumes, considering regulation and reservoir operations.*

   ii. *Maximum water inflow to the reservoir for return periods of 500 and 1000 years (according to the importance of the works and foreseeable damages in case of failure).*

   iii. *Determine Maximum flow output though the spillway*

   iv. *Sediment transport for the basin, estimating dead volumes in the reservoir and lifespan of the dam.*

   v. *Determine Dam's crown head, normal water levels, maximum water levels, etc.*

   vi. *Define floodplains including security strips*

d) *For the structural design of Dams (if Applicable)*

   i. *Determine preferred type of dam structure (Earth dam, rock fill, RC, RCC, etc.).*

   ii. *Determine geometry of the dam (maximum height, length and width of the crown, maximum width foot of the dam, freeboard, slopes, levels, etc.)*

   iii. *Perform a slope stability analysis for various loading conditions, considering seismic forces.*

   iv. *Design construction details for the dam (dam body, foundations, concrete injections if needed, drains, slope protections, etc.).*

   v. *Propose construction strategies for the dam.*

   vi. *Produce design documentation as technical specifications, bill of quantities, schedules, etc.*

e) *Spillway design (if applicable)*

   i. *Hydraulic design of the spillway and ancillary works*

   ii. *Structural design and constructive analysis of the spillway*

   iii. *Produce design documentation as detailed drawings, technical specifications, bill of quantities, schedules, etc.*

f) *Intake design*

   i. *Determine design flows, maximum design flood and Hydrology conditions of the basin*

   ii. *Perform all studies required for the design (geological, geotechnical, topographical, etc.)*

iii. *Hydraulic design of the intake; details of valves and dampers, pipes, channels, etc. Determine intake capacity, design energy dissipation structures and design additional works (channels, gates, pipes, etc)*

iv. *Structural design of the intake*

v. *Design protection structures,*

vi. *Produce construction drawings showing plan views, longitudinal and cross section views, details of the structure, structural details, etc.*

vii. *Produce design documentation as technical specifications, schedules, etc.*

g) *Design of the irrigation system*

i. *Determine design flows, maximum design flood and Hydrology conditions of the basin*

ii. *Determine Hydraulic and geometric characteristics of the irrigation system.*

iii. *Design channels, consider materials for the design, channel geometry, topography conditions, geology, slopes, lengths, operational conditions of the system, etc.*

iv. *Produce construction drawings including general plan view (scale 1:1000); longitudinal profiles (scale horizontal: 1:1000; vertical: 1:100); showing location of hydraulic structures, benchmarks, horizontal and vertical features of the track, etc.*

v. *Produce detailed drawings for geometric sections of the channel and cross sections,*

vi. *Prepare a description of the general geology of the route;*

vii. *Identify volumes for earthworks and location*

viii. *Produce design documentation as technical specifications, bill of quantities, schedules, etc.*

h) *Hydraulic structures in the irrigation areas*

i. *Identify location of all irrigated areas, determine irrigation scheme and hydraulic structures required*

ii. *Produce hydraulic and structural designs for all hydraulic structures as falls, siphons, aqueducts, etc.*

iii. *Produce detailed drawings for hydraulic structures including plan views, longitudinal profiles, geometric sections,*

iv. *Describe building materials and their characteristics,*

v. *For minor structures (falls, gauges, valves, pedestrian and vehicular crossings, etc.) it will be possible to produce only standard designs and provide information in regard to number of structures required and location.*

4. *Perform an environmental assessment of the project and propose mitigation measures to be included in the construction project.*

The designer will be required to prepare documentation that describes hydraulic and structural design procedures, selected construction materials, suggested construction approaches, etc.

Similarly, the designer may have to prepare a detailed project program, detailed bill of quantities and schedules, technical specifications, and other documentation required to carry out the construction.

8.3 Building Services (Mechanical And Electrical)

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant maybe required to carry out designs for some of the following non-conclusive list of systems / installations.

- *Heating, Ventilation and Air Conditioning (HVAC) systems*
- *Extraction systems*
- *Elevators and escalators*
- *Internal Services*
- *Water Pumps and Well systems*
- *Water Purification Systems*
- *Waste management*
- *Environmental efficiency systems*
- *Health Care facilities*
- *Automated doors and windows*
- *Backup power supplies*
- *Airfield systems*
- *Internal Lighting*
- *Fire detection and suppression systems (see section 8.3)*
- *Security Systems (see section 8.4)* *Building control systems.*
- *Energy distribution.*
- *Energy supply (gas, electricity and renewable sources such as solar, wind, geothermal and biomass).*
- *Information and communications technology (ICT) networks.*
- *Lightning protection.*
- *Refrigeration.*
- *Water, drainage and plumbing (including sustainable urban drainage systems (SUDS)).*
- *Carbon emissions calculations and reduction*

8.3.1 External Lighting

Where required by a particular project, the Consultant shall prepare a Design Basis statement, upon commencement, for all the external lighting following liaison with the local authority as noted below.

- *For lighting in areas to be taken in charge by the local authority, the Consultant shall liaise with the local Authority's Design and Maintenance Departments to agree on the lighting design and specification requirements. (E.G. BS4589) Calculations shall be submitted to the*

UNICEF. The calculations shall include cd/m2, lux TI (%), overall average uniformity, and voltage drop calculations. A summary shall be submitted along with the calculations indicating compliance with the standards

- *The Consultant shall prepare Detailed Design and drawings to a scale of 1:500 (or as otherwise agreed), construction details, and specifications covering all aspects (including civil, electrical and mechanical equipment and control works). The Consultant shall be responsible for all coordination with the electricity supply company for power supply constraints, location of feeder pillars and load requirements etc.*
- *For external lighting to publicly accessible areas, the requirements shall be identified as part of the Local Authorities' permitting system and shall be designed in accordance with international design standards acceptable to both the UNICEF and the Local Authority.*
- *Where security lighting is required, this shall be designed in accordance with the requirements of section 8.4*
- *The need for and provision of temporary lighting shall be considered, designed and documented as required by the particular project.*
- *Emergency and decorative lighting if required, shall be designed in accordance with the particular project requirements.*

8.3.2 Water Supply

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant may be required to provide all or parts of the following activities which include but are not limited to:

- *Feasibility studies related to the design including the gathering of data such as survey work, identification of source of water (of required), condition assessment of any existing network and connection point, coordination with relevant authorities, etc*
- *Development of schematic design and minimum of 3 options based on the feasibility studies for various components such as:*
    - *Water storage*
    - *Treatment system*
    - *Distribution network including pipelines, pumps, connection to existing network*
- *Identification of the preferred design based on the three options developed*
- *Development of the preferred option's preliminary and detailed design in consideration to access to water supply, water quality, site location, material availability, durability and economics for:*
    - *Water storage facility*
    - *Water treatment system*
    - *Distribution network including all pipework, pumps and connections to the existing networks*
    - *All associated civil, electrical and mechanical works associated with the above*
- *Development of bill of quantities, scope of work and for construction drawings to allow tender and construction work*
- *Supply and demand calculations based on clear criteria including population size, existing use, future use of land for residential, commercial, and/or any other uses. The consultant shall study in detail the future projection.*

- *Conducting climate risk assessment on water sources, providing detailed recommendations on resource sustainability, water users of the same source, pollution sources and how infra-structure installed on this source can be sustained using one source and or more than one source.*

8.4 Fire Prevention

8.4.1 Overview

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant maybe required to provide all or parts of the following activities which include but are not limited to:

- *To get acquainted with the building, checking and measuring the structure, mechanical and electrical elements, and the already existing structures/systems (the Consultant shall execute a survey in the extents he requires / no tests are authorized without the prior approval from the UNICEF);*
- *To prepare a design for the fire suppression system inclusive of a detection system; The Consultant shall estimate and make the relevant assumptions in order to properly calculate the fire load and the systems accordingly.*
- *To propose the adequate measures/civil works required to the building in order to achieve a watertight condition (if and where required for the correct functionality of the systems).*
- *To propose any necessary mechanical/electrical upgrade in the existing systems.*
- *To prepare a detailed design of the entire Works for UNICEF approval.*
- *To supply and install all materials and equipment/machineries, inclusive of any additional civil works or upgrades, and to connect them to the main existing utility networks (electrical panels and LAN network).*
- *To execute and complete the additional works to the building and systems as required by this Contract and by the Consultant's proposal (approved by the UNICEF);*
- *To execute and install any other accessories or optional as may be required;*
- *To test the systems, and release certifications as required by the laws of the country.*

The systems under this scope of work may include but not be limited to the following main elements:

- *Smoke or fire detectors;*
- *Detection station;*
- *Central station;*
- *Gas cylinders;*
- *Mechanicals;*
- *Nozzles;*
- *Call point with breakable glass;*
- *External and internal alarm chime with display*
- *Design of the necessary safety signage, and*
- *Any other necessary accessory/equipment as described here under or proposed by the Consultant and accepted by the UNICEF.*

For all the elements of the Works where no specific details have been included (pipes diameters, taps locations, characteristics of civil materials, concrete, pressure gauge

locations, electrical cable sections, etc) it is the responsibility of the Consultant to design what is necessary and to propose the best cost-benefit solution to the UNICEF, who will approve the solution and the materials.

The scope of works provided within this document are indicative and not exhaustive of the works required. It is responsibility of the Consultant to satisfy himself with the scope of works, and eventually to include in the tender proposal clear indications about the works he thinks are missing or necessary to fully complete the job. When completed, the Works shall be fit for the purposes for which the Works are intended as defined in the Contract.

8.4.2 Detection System

The requirements for the detection system may include:

- *Designed in accordance with the norms such as EN12094:1/2003, EN54-2, EN 54-4 and shall be able to activate the suppression system in case of need. The country specific requirements as required by law also shall be incorporated and considered into the design.*
- *Provision of switch for control of the operational mode of the control station: automatic, manual, disabled*
- *Time counter (with two digits) for the countdown of the seconds before the fire suppression phase starts shall be included.*
- *Monitoring system for the control station to check malfunctions.*
- *Allowance for a personalized programming.*
- *Data connection with the LAN switch with ability to manage the system remotely through software.*
- *Propose and design all the other equipment/tools/machineries necessary to allow the detection system to work and adequately perform the function in the building.*
- *Pipes, conduits and connections shall be placed where it is most convenient and where it does not create obstacles to the usability of the space.*

8.4.3 Suppression system

The requirements for the suppression system may include:

- *Design properly to operate in the space (fire load to be determined by the Consultant together with the other required parameters) and it shall meet the main goals of:*
  - *i. high capacity to quickly extinguish the fire,*
  - *ii. use environmentally friendly gas, and*
  - *iii. maximum attention to safety of persons and employees if present in the building.*
- *Provision for adequate switches/remote controls to allow for stopping the suppression, for monitoring the fluxes, for monitoring the pressure (and its levels, in particular when these go under minimum thresholds) and for activate or deactivate any other equipment/tool required for the system.*

- *Data connection with the LAN switch with ability to be managed remotely through software.*
- *All materials used and installed to conform to the particular project requirements. All materials must be certified for being used in fire suppression systems.*
- *Identification, design and where directed execute/install all the other necessary civil works and/or equipment required to guarantee the watertight of the building.*
- *Gas cylinders (testes and homologated), their quantity and the gas volume shall be designed by the Consultant.*
- *All mechanics of the systems (including pipes, distribution network, valves, pressure gauges, seals, gaskets, nozzles, etc) and the gas are considered included in the contract.*
- *Pipes, conduits and connections shall be placed where it is most convenient and where it does not create obstacle to the usability of the space.*

8.4.4 Ancillaries

The Consultant shall consider all ancillary work required for connection to the existing or new electrical or LAN network including all associated civil works.

8.5 Security

8.5.1 Overview

In line with requirements of project phases 1 to 3 as described in section 3, the Consultant maybe required to provide all or parts of the following activities which include but are not limited to:

- *Consultation, at project outset, with the UNICEF to identify the project requirements and constraints.*
- *Assessment of the proposed site and its current condition (including existing*
- *building/ structures, services, utilities, infrastructure and ancillaries);*
- *Selection, appointment and management of the services of third parties, with the approval of the UNICEF, for the execution of any specialist assessment, investigative works and any other third-party services required (topographic, geotechnical surveys etc.);*
- *Identification, preparation, and if requested by the UNICEF, submission of the necessary permits and statutory approvals required in order to complete the project.*
- *Execution of the design and provision of deliverables in accordance with this scope of work.*
- *Liaison with the UNICEF and any other stakeholders to the project including any liaison that may be required with other third parties from time to time*
- *Prepare a detailed projected construction programme for the project identifying the likely timeline for the project construction phase and including project milestones.*
- *Provision of, at preliminary and detailed design stages, cost estimates for the project, based on the relevant schedules of quantities and reflecting local rates, to be utilized to scope the project within the available project budget and as a reference document for the assessment of prices submitted to construct the project.*
- *Provide detailed specifications for works, materials, equipment and methods to enable the Contractor 's to construct the project.*

- *Ensure that the production of the design and the completion of the construction is executed in accordance with national and international health & safety standards as well as the UNICEF security requirements.*

8.5.2 Specifics

The design of security upgrades under this scope of work may include but are not limited to the following main elements as advised by the UNICEF Security based on the assessment of threats and proposed mitigation measures:

- *Co-ordination and management of the design of Security perimeter wall in response to wide range of threat including blast and ballistic protections. (see section 9.0) Provision of reinforcement of internal/ external structure as directed by the UNICEF.*
- *Design of bunkers, strong rooms and vaults.*
- *Provision of intruder alarm and security system (internal & external) including lock and keying systems.*
- *Provision of CCTV/ surveillance cameras and infrared detection systems including the associated central information/ control system.*
- *Provision of security lighting.*
- *Provision of entry and exit control for pedestrians and vehicles including hostile vehicle mitigation measures and barriers.*
- *All associated civil, electrical and mechanical work as part of the response to the mitigation measures required by the UNICEF Security.*
- *Any other necessary accessory/equipment as described here or proposed by the Consultant and accepted by the UNICEF.*

8.6 Permitting

The Consultant shall research and confirm details relating to the permits that will be required to complete the development and construction of the Project. The Consultant shall prepare a summary document highlighting the information gained and relevant procedures to be followed to obtain all permits for the Project. All applications for permits shall be prepared by the Consultant with the UNICEF being notified when they are ready for submission. The Consultant shall not submit permits on the UNICEF's behalf unless confirmed in writing by the UNICEF.

8.7 Technical Peer Review

Where required, a technical review shall be carried out by a suitably qualified person who is not directly involved with the project. The technical review should consist of a report that records the Technical Review of the particular phase of the project

The Technical Review should be divided into a number of assessment criteria numbered 1 to 13. As provided in table 8.6 below. Note, not all items will be applicable to every project

Table 8.6 – Technical review requirements

Item	***Technical Review Coverage***	***Comments***
1	*Compliance with the brief*	• *Check against the requirements and deliverables within UNICEF's Brief.* • *Change Control Register in place.*
2	*Checking / Verification have been undertaken.*	• *Verification that checking procedures are being followed and that appropriate / correct signatures are being used.* • *Verification that all 3rd party of subconsultant works are being checked and approved*
3	*The completed works should be able to perform satisfactorily under the expected conditions of use.*	• *Level of Service appropriate to the local conditions has been evaluated.* • *Strategy to minimize maintenance.* • *Works designed to relevant standards.*
Item	***Technical Review Coverage***	***Comments***
4	*Health & Safety requirements of the brief and as required by local practice are in place and recorded*	• *Design Risk assessments carried out* • *Contract Documents include appropriate direction and guidance to the contractor in relation to Health and safety risks*
6	*Compliance with relevant regulatory requirements, national/international codes & standards and Company practices*	• *Evidence that designs have been carried out that meets the required compliance with codes and standards*
7	*Validation of survey information and constraints to the design*	• *Confirmation that appropriates surveys have been carried out*
9	*Design plan and methodology*	• *Design methodology developed for each major element* • *Design Assumptions recorded*

10	*Constructability & Maintainability considerations*	• *Construction strategy/plan prepared and appropriate* • *Maintenance Handover Plan prepared and appropriate*
11	*Value Engineering.*	• *Engineering solutions have been developed that provide a cost-effective design*
12	*Interdisciplinary checks*	• *Each Design element should be checked for compatibility with each other.* • *Evidence of interdisciplinary design reviews carried out*
13	*Project Specific*	

The Technical Review is not a complete check of the project outputs. The responsibility for the detailed checking of project deliverables remains with the Project Team.

9 ***Feasibility Study, data collection, and analysis including Literature review and analysis of available body of knowledge on a specific topic.***

The Consultant shall conduct comprehensive feasibility studies, data collection, and analysis including a thorough literature review and analysis of the available body of knowledge on the specified topic. The Consultant is responsible for preparing a detailed report that encompasses all findings, insights, and recommendations based on the study conducted. This report will serve as a critical tool for the UNICEF in decision-making processes related to the topic of study.

11.1 Detailed Requirements

The feasibility study, data collection, and analysis process is integral to understanding the viability, risks, and opportunities associated with the specified topic. This encompasses several phases of work as outlined below:

- *Project Scope and Objectives: Define the scope and objectives of the study clearly, outlining the specific topic, questions to be answered, and the goals of the research.*
- *Literature Review: Conduct an exhaustive literature review to gather existing knowledge, theories, and research related to the topic. This should include academic journals, industry reports, government publications, and any other relevant sources.*

- *Data Collection Methodology: Develop a robust methodology for data collection, specifying the types of data needed, sources, and methods for data gathering. This should cover both primary and secondary data, including quantitative and qualitative data as appropriate.*
- *Data Analysis: Analyze the collected data using suitable statistical or qualitative analysis tools. Identify patterns, trends, and insights that can inform the feasibility of the topic under study.*
- *Feasibility Assessment: Based on the data analysis, provide a comprehensive assessment of the feasibility of the project or initiative related to the topic. This should include considerations of technical feasibility, economic viability, legal and regulatory compliance, environmental impact, and social acceptability.*
- *Recommendations and Strategic Insights: Offer clear recommendations based on the feasibility study and analysis. Include strategic insights that can help the UNICEF in decision-making, planning, and implementation phases.*
- *Risks and Opportunities: Identify potential risks and opportunities associated with the project or initiative. Provide strategies for risk mitigation and capitalizing on opportunities.*
- *Report Writing: Prepare a comprehensive report documenting the study's methodology, findings, analysis, and recommendations. The report should be structured to facilitate easy understanding and actionable insights for the UNICEF.*

11.2 Engagement and Communication

- *Stakeholder Engagement: Engage with relevant stakeholders, including industry experts, potential users, and other key informants, to gather insights and validate findings throughout the study.*
- *UNICEF Collaboration: Maintain ongoing communication with the UNICEF, providing regular updates and seeking feedback at critical stages of the study to ensure alignment with the UNICEF's needs and expectations. UNICEF, UNICEF's government partners, key community stakeholders, private sector, academic institutions*
- *Presentation of Findings: Present the findings, analysis, and recommendations to the UNICEF through formal presentations or workshops, ensuring a comprehensive s, feasibility assessment, recommendations, and strategic insights.*
- *Data Collection and Analysis Documentation: Detailed documentation of the data collection process, datasets, analysis methods, and analytical outputs.*
- *Stakeholder Engagement Summary: A summary of stakeholder engagement activities, including key insights and feedback received.*

11.3 Deliverables

- *Feasibility Study Report: A detailed report including the study's scope, methodology, findings, analysis*

10 Environmental Assessment And Permitting

The Consultant shall research and confirm details relating to the permits that will be required to complete the construction of the Project. The Consultant shall prepare a summary document highlighting the information gained and relevant procedures to be followed to obtain all permits for the Project and present this information in the Assessment Report.

10.1 Detailed Requirements

Generally, the environmental assessment and permitting is related to Phase 2 of the project life cycle; however, depending on the situation the project may be at any of the phases 1 to 6 within the project life cycle as described in the RFP document.

In preparation of the environmental assessment, it is expected that the following requirements are addressed:

- *All environmental and social impact assessments shall be conducted using UNEMG guidelines and UNCIEF new guidelines on environmental and social impact assessments of any project. UNICEF new guideline will be published in 2024 governing the assessment structure, areas to be assessed, environmental management plan components. The consultant shall ensure harmonizing the international UNICEF guidelines which was designed with in depth consideration to key UNICEF donors' criteria on environmental and social safeguarding. However, some donors have special requirements as well as the hosting government of Iraq guidelines and recommendations that shall be obliged and kept as core when the assessment is conducted.*
- *Provide a project description suitable for the report use and assessment. The project description should include all on and off-lease activities relevant to the project including construction, operation and decommissioning activities. If the delivery of the project is to be staged, the nature and timing of the stages should be fully described.*
- *For all the relevant matters, the environmental assessment must identify and describe the environmental values that must be protected. Environmental values shall be based on the country specific Environmental Protection (EP) Act, the EP Regulations, EP policies (EPPs) and relevant guidelines.*
- *The assessment should cover both the short and long-term scenarios and state whether any relevant impacts are likely to be irreversible.*
- *Provide all available baseline information relevant to the environmental risks of the project. Provide details about the quality of the information provided, in particular: the source of the information; how recent the information is; how the reliability of the information was tested; and any uncertainties in the information.*

- *Demonstrate how the construction, operation and decommissioning (to the extent known) of the project would be consistent with best practice environmental management. In general, the preferred hierarchy for managing likely impacts is: (a) to avoid; (b) to minimise or mitigate; and (c) if necessary, and possible, to offset.*
- *Provide detailed strategies in regard to all critical matters for the protection, or enhancement as desirable, of all relevant environmental values in terms of outcomes and possible conditions that can be measured and audited.*
- *Impact minimization measures should include ongoing monitoring and proposals for an adaptive management approach, as relevant, based on monitoring. The proposed measures should give confidence that, based on current technologies, the impacts can be effectively minimized over the long term.*
- *Present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes. Discuss the consequences of not proceeding with the project.*
- *For unproven elements of a resource extraction or processing process, technology or activity, identify and describe any global leading practice environmental management where available.*
- *The assessment and supporting information should be sufficient for the UNICEF to decide whether to proceed with the project or not.*
- *To the extent of the information available, the assessment should endeavor to predict the cumulative impact of the project on environmental values over time and in combination with impacts created by the activities of other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring. This will inform the decision on the Environmental Impact Statement (EIS) and the setting of conditions. The absence of a comprehensive cumulative impacts analysis need not be fatal to the project. The EIS should also outline ways in which the cumulative impact assessment and management could subsequently be progressed further on a collective basis.*
- *Include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.*
- *Provide all geographical coordinates throughout the EIS in latitude and longitude against the Geocentric Datum of the Country.*
- *An appropriate public consultation program is essential to the impact assessment process. The proponent should consult with local, government authorities, and potentially affected local communities as directed by the UNICEF.*
- *The EIS should describe the consultation that has taken place and how the responses from the community and agencies have been incorporated into the design and outcomes of the project. The public consultation plan should be prepared in consultation with the UNICEF and relevant government authorities.*
- *Include, as an appendix, a public consultation report. The report should detail how the public consultation plan was implemented including the results.*

10.2 Aspects to Be Addressed

The structure of the EIS shall be agreed with the UNICEF at the start of the project. In general the EIS shall address the following requirements as a minimum:

- *Executive summary*
- *Introduction*
    - *Project owner*
    - *Outline of EIS process applicable in the context of the country*
    - *List of permits required and the outline of approval process*
- *Project description*
    - *Proposed development details*
    - *Site description*
    - *Climate*
    - *Proposed construction & operation*
- *Assessment of critical matters requiring treatment in relation to activities causing a high or medium level of environmental harm, have the potential to create a perception by the community to cause harm to the environment or matters that of national environmental significance.*
- *Assessment of routine matters such as:*
    - *Land use*
    - *Flora, fauna*
    - *Biosecurity*
    - *Water quality*
    - *Water resources*
    - *Flooding & regulated dams*
    - *Air*
    - *Noise & vibration*
    - *Waste management*
    - *Cultural heritage*
    - *Social & economic*
    - *Transport*
    - *Hazard & safety*
    - *Climate change and any other area may be described by UNICEF new guidelines 2024*

Permit required including further explanation of the documentation required and the applicable processes. The Consultant may be engaged to prepare, and source permits are required.

11 Project Management

11.1 Programme and Contract Management

The UNICEF requires the Consultant to undertake the overall programme management including contract management of the works. The details regarding the type of project and status of the work will be provided to the Consultant prior to commissioning.

Overall, the project 's current status may be at any of the phases 1 to 6 within the project life cycle as described in the RFP document and the Consultant may be asked to manage one or a number of the phases.

The Consultant may have the responsibility for undertaking all or some of the following activities as part of the Consultancy:

- *Overall project management and reporting for the project.*
- *The creation and management of programme and contract management*
- *methodology and system (documentary and software support shall be provided by the Consultant).*
- *In case of claims and disputes, to provide the necessary evidentiary records and analyses and bear expert witness in defense of the case of the UNICEF.*
- *Consultation, at the project outset, with the UNICEF to identify the project requirements and constraints.*
- *Selection, appointment, and management of the services of third parties, with the approval of the UNICEF, for the execution of any specialist assessment, investigative works and any other third-party services required (topographic, geotechnical surveys etc).*
- *Identification, preparation, and if requested by the UNICEF, submission of the necessary permits and statutory approvals required in order to complete the project.*
- *Preparation of a project delivery programme for all phases of the project including identification of key milestones and decision/ control points.*
- *Assistance to the UNICEF during the tender stage in response to RFIs, tender evaluation, preparation of tender evaluation reports and providing recommendation to the UNICEF for award.*
- *Liaison with the UNICEF and any other stakeholders to the project including any liaison that may be required with other third parties from time to time.*
- *Prepare a detailed projected construction programme for the project identifying the likely timeline for the project construction phase and including project milestones.*
- *Overall management of preliminary and detailed design.*
- *Provision of, at preliminary and detailed design stages, cost estimates for the project, based on the relevant schedules of quantities and reflecting local rates, to be utilised to scope the project within the available project budget and as a reference document for the assessment of prices submitted to construct the project at the various locations.*
- *Provide input at Project Tender Stage, as required, to answer queries from Contractors, to make any necessary alterations to the design and to provide input into the assessment of Contractor‘s tender submissions.*
- *Provision of assistance and technical expertise throughout the construction phase of the project when required, to respond to Contractor‘s queries, to resolve design issues on site and alter elements of the design, if requested.*
- *Establishment of management control systems for civil engineering works contracts.*
- *Administration of Contracts under direction of the UNICEF.*
- *The provision of assistance to the UNICEF maintaining control over estimated works quantities and contract outcome costs, in monitoring the progress of the Works, the disbursements and technical records.*
- *Acceptance and/or approval, as appropriate, of submissions required from the Contractors, including, but not limited to: key staff appointments, programmes, method statements, environmental management plans, safety measures, suppliers and materials for*

incorporation in the works, the quality assurance and control plans, laboratory provisions and execution of the testing programme, and all other submissions related to subcontractors, plant, and equipment.

- *Direct supervision of the works and monitoring of progress.*
- *Preparation of progress, technical and contractual reports;*
- *Establishment and management of a programme of test work to be carried out at an independent laboratory.*
- *Attendance at progress meetings*
- *Management of stakeholders*

11.2 Procurement Process

UNICEF will require the Consultant to undertake responsibilities and accountabilities according to the mentioned scope of work..

Overall, the project's current status may be at any of the phases 1 to 6 within the project life cycle as described in the tender/solicitation document and the Consultant may be consulted in the procurement process.

The Consultant may have the responsibility for undertaking all or some of the following activities as part of the Consultancy:

- *Overall reporting on all stages of the the project.*
- *Consultation, at project outset, with UNICEF to identify the project requirements and constraints.*
- *Development of scope of works, method statement and consultation on the preparation of the tender documents including cost estimation for selection of a contractor cto undertake the construction work.*
- *Provision of, at preliminary/ detailed design/ construction stages, cost estimates for the project, based on the relevant schedules of quantities and reflecting local rates, to be utilised to scope the project within the available project budget and as a reference document for the assessment of prices submitted to construct the project at the various locations.*
- *Undertaking construction market survey to enable the UNICEF to gain a good understanding of the local market. The market survey requirements may include a number of factors in addition to the rates such as availability of the construction material, tools, contractor capability, local practices, level of quality control, sustainable practices required in relation to the available capacity in the country and/or region.*
- *Undertaking the required activities, as per direction ofUNICEF during the tender stage in response to RFIs, technical evaluation, preparation of tender evaluation reports and providing recommendations to the UNICEF and evaluation panel for award.*
- *Additional activities in relation to the procurement process may include but are not limited to:*
    - *review of shortlisted construction companies prior to the tender phase;*

- *attendance at pre-bid meetings with shortlisted companies*
- *technical input, as and when required, to UNICEF tender evaluation panels*
- *collation of design and/or construction contract package in liaison with UNICEF*

The requirement for the Consultant to participate in these activities shall be agreed on a case-by-case basis.

11.3 Risk Management

The Consultant shall maintain a Risk Register that records all risks to the successful completion of the project. Within 14 days of agreement, the Consultant shall prepare and submit a Risk Management procedure and the first issue of the project Risk Register for approval by the UNICEF. The Risk Register shall conform to the requirements of Risk procedures identified for each project.

The Risk Management procedure developed by the Consultant will address:

- *Responsibility for the risk management process – Who, within the Consultant's organization, will be undertaking the coordination of risk management activities on the project.*
- *Identification of Risks – When and how risks are identified and updated. (Note: it is envisaged that this may be achieved through Risk Workshops and subsequent interactive maintenance of the risk register). An up-to-date risk register must be maintained and provided with progress reports.*
- *Commercial Impact of Risks – Following his analysis, the Consultant is required to advise the UNICEF of any budgetary/cost impacts (together with likelihood of occurrence) that might arise from any identified risks.*
- *Mitigation of Risk – How mitigation plans are created and implemented. How the effectiveness of the implementation of such mitigation plan(s) are monitored and fed back into the risk management process.*

Following direction by the UNICEF, the Consultant shall use the preferred templates and tools to record and present the findings of the risk assessment and management process.

11.4 Quality Management

11.4.1 Quality System

The purpose of this specification is to define the Consultant's general responsibility for demonstrating that the work under the contract or purchase order is executed to the Quality standards required by the particular project/agreement.

Individual Consultants may be required to employ their own Quality System including internal auditing with associated records. They may be required to develop initial Quality and Project Plans

11.4.2 Acceptable Quality System Standards

The following list identifies the recommenced quality standards that could be used by the consultant, other standards are available, and the initial quality and project plan should identify the standards to be used as part of the project.

a) *BS EN61160:2005 Design Review*
b) *ISO 9000:2008 Quality Management Systems-Fundamentals and Vocabulary*
c) *ISO 9001:2008 Quality Management Systems Requirements*
d) *ISO 9004:2008 QMS Guidelines for Performance Improvement*
e) *ISO 10006:1997 Quality Management – Guidelines to Quality in Project Management*
f) *ISO 10005:1995 Quality Management – Guidelines for Quality Plans*
g) *ISO 19011:2002 Guidance on auditing of Quality & Environmental Management Systems*
h) *Others by agreement*

The Consultant will be responsible for Quality auditing and oversight of any sub-entities under their control. The UNICEF may review the design for accuracy. That will consist mainly of reviewing design and associated documents for accuracy. The UNICEF may audit and monitor the Consultant's records and documents for compliance with their contract, Quality Plan and procedures.

11.4.3 Quality System Documentation

The Consultant's Quality system may be required to include the following elements:

a) *Quality Plan including internal surveillance plans and audit schedule*
b) *Procedures and work instructions: The Consultant Quality system must include all relevant technical procedures and other documents to ensure that the design works are completed in accordance with the contract with specific reference to the development and implementation of Quality Procedures.*
c) *Quality records: In addition to (and including) Quality records identified in the contract or other applicable codes, standards or procedures, the Consultant shall identify project Quality records. That list of Quality records generated during the life of the contract and made available upon request for review by the UNICEF, shall be indexed by the Consultant.*
d) *Reference and other related documents.*

These Quality System documents shall be submitted to the UNICEF for review, comment and approval within 30 days after contract award or as agreed otherwise

11.4.4 Quality Plan

Consultants are required to submit Quality Plans (addressing their activities) which are specific to the Contract and not generic. This plan shall reference or include other documentation which is relevant to the Contract. However, as a stand-alone document, the Quality Plan shall clearly indicate how the Quality Assurance processes shall be applied to meet the requirements of the Contract:

a) *Specific work practices. methods and events.*
b) *Lists of all procedures applicable to the Project.*
c) *Audit Plan.*
d) *Management Review.*
e) *Performance indicators.*
f) *Allocation of resources.*
g) *Responsibilities and authority for all phases of the work.*
h) *Control of Non-conformances.*
i) *Lessons learned continual improvement*
j) *QA/QC Organization*

The Design Consultants 'Quality Plan will include or make reference to the plan(s) for design and development. It will take into account applicable codes, standards, specifications, Quality *characteristics and regulatory requirements as appropriate. It will identify the criteria by which the design and development inputs and outputs should be accepted, and how, at what stage(s), and by whom, the outputs should be reviewed, verified and validated.*

The Design Consultant's Quality Plan will also state the following:

a) *How requests for changes and development will be controlled;*
b) *Who is authorized to initiate a change request;*
c) *How changes will be reviewed in terms of their impact*
d) *Who is authorized to approve or reject changes;*
e) *How the implementation of changes will be verified.*
f) *When design and development reviews take place;*
g) *When value engineering reviews take place;*
h) *When design and development verification take place,*

i) *When design and development validation take place.*

11.5 COST ESTIMATION

Overall, the project's current status may be at any of the phases 1 to 6 within the project life cycle as described in the RFP document and the Consultant may be asked to prepare a cost estimate exercise for one or several of the phases within the project life cycle.

In preparation of the cost estimation and undertaking the market survey, the Consultant may maybe asked to consider the following requirements:

- *The cost estimate should take into consideration to all project's aspects that need to be completed and shall be generated based on the local cost of materials and services providing several costs seniors based on origin of the goods and services, brands, O&M , imports and transportation fees, experience of delivering the service and if there is need to bring about an international service provider.... etc.*
- *It shall be in the currency of the Contract.*
- *The content, level of detail and the basis of the cost estimate shall be agreed with the UNICEF.*
- *The estimate shall be based on the schedules of quantities completed for each element of the Project and shall include the capital cost of the proposed works and include separately all other costs associated with the project.*
- *The cost estimate shall reflect the cost of required materials and services of the implemented project.*
- *It shall be based on the schedules of quantities completed for each element of the work.*
- *The cost estimate shall be in the format agreed with the UNICEF.*
- *In addition the Consultant maybe asked to undertake the following activities:*
- *The Market Survey which includes the assessment of local factors/conditions such as: availability of construction materials, tools and technical know-how available in that country, or in the region, monopoly situations, local practices, etc. The outcome can facilitate informed decisions, time and budget required to be implemented as well as special considerations to mitigate identified risks.*
- *A detailed report of cost estimate has to be submitted considering all the above which includes a market survey*

12 Site Supervision

The project's current status may be at phase 4 and/or 5 within the project life cycle as described in section 3. The details regarding the type of project and status of the work will be provided to the Consultant prior to commissioning.

The Consultant shall have responsibility for the following elements of work:

- *Supervise the construction of the project through to the issue of the certificate of substantial completion and beyond;*
- *The establishment, through and in the course of the assignment, of supervision methodology and system (documentary and software support shall be provided by the Consultant);*
- *The transfer of expertise in supervision on construction contracts*
- *In case of claims and disputes, to provide the necessary evidentiary records and analyses and bear expert witness in defence of the case of the UNICEF.*
- *Provide input and assistance into the completion of project as-built drawings;*
- *Provide input and assistance into the completion of project financial final accounts.*
- *Ensure that the completion of the construction is executed in accordance with national and international health & safety standards.*
- *Ensure that all construction is completed according to internationally recognised quality standards.*
- *Constant supervision of the construction work, programming and co-ordination.*
- *Provision of engineering and project management services from inception to completion.*
- *Inspect and monitor time, progress, cost, quality and quantity of the works and other agreed targets.*
- *Ensure the implementation of the project in accordance with the approved design and the construction contract and local circumstances.*
- *Exercise any and all powers delegated by the Employer under the construction contract and ensure the successful delivery of the project.*
- *Liaison with local authorities, as required, to obtain any necessary authorizations for the implementation of the project and to ensure co-ordination of activities throughout the project duration.*
- *Assessment and approval of the contractor‘s security provisions, with the UNICEF*
- *Security officer, to protect the Employer‘s personnel and assets during the construction phase of the project.*
- *Provision of advice to the Employer concerning the schedule of handing over of the site and any designated access to the successful contractor including notification of possible delays that could affect such a handover.*
- *Approval of the contractors site supervision personnel that have not already received the prior approval of the Employer.*
- *Approval of the contractors selected sub-contractors that have not already received the prior approval of the Employer.*
- *Inspection and evaluation of the contractors' on-site and off-site facilities to ensure compliance with the terms and conditions of the contract. This shall include inspecting any material sources, fabrication facilities and the contractors' proposed laboratory testing facilities and recommending improvements (if any) to said facilities or procedures to ensure the desired performance.*
- *Advice on the selection of contractor's equipment. Assess minimum construction equipment, plant and machinery requirements, by type and specification, and monitor, keep and regularly update a list of the contractor‘s equipment, plant and machinery in order to keep a check on the contractor‘s mobilization.*
- *Inspection of contractor's construction equipment ensuring that compliance with the manufacturers ‘requirements is being achieved and international standards relating to pollution, noise and vibration are being complied with.*

- *Inspection of material sources both on and off-site. Ensure the completion of tests of materials to ensure adherence to specifications. Approval of all material to be used on the projects.*
- *Assessment of the contractor's construction methods for the works ensuring that the methods proposed are satisfactory with respect to the requirement of programme, quality, and health and safety.*
- *Continuously monitor the construction progress to ensure it is proceeding in accordance with the approved design, methodology and work programme. Liaise with the contractor in the event of problems occurring to attempt to arrest the situation.*
- *Liaison with the Employer in relation to any variations. Assessment and approval of variations required, at the rates established in the construction contract, or at alternative rates mutually agreed between the Employer and the contractor, in accordance with the delegated authority assigned under the construction contract.*
- *Ensure that the contractor adheres to local laws and customs and in particular does not use child labor for the execution of the contract.*
- *Any other duties consistent with the normal roles and responsibilities of a Consultant.*
- *Providing input in relation to applications for payment and contract variations; If required, attending site for progress meetings and to provide onsite support; and Oversee and review the completion of the contract ―as-built‖ drawings.*

In relation to the provision of design input and technical advice, this will largely be in response to information requests from the Contractor. The Consultant will provide a response to queries from the field as soon as possible and in any case no longer than one working day from receipt of such a request. Where the response to a query is agreed between the parties as requiring additional time, the Consultant shall notify the UNICEF in writing as to the expected timeline for receipt of the response.

12.1.1 Construction Supervision Role

The Consultant shall include within the supervision report, details of the procedures that it would intend to implement at each of the work sites and the national / international standards the supervision of the project would be carried out to.

Each site supervision team shall consist of a minimum of three individuals as follows:

- *Senior Resident Engineer / Clerk of Works (minimum 12 years relevant experience)*
- *Resident Engineer (minimum 5 years relevant experience)*
- *Administration Assistant (minimum 3 years relevant experience)*

Each member of the site supervision team shall be suitably qualified and to the approval of the UNICEF. Notwithstanding the minimum membership of each individual site team detailed above, the Consultant shall be responsible for ensuring that the number of supervision personnel assigned to each individual work site is sufficient to satisfy to site and complexity of the project at each

identified location. The level of supervision provided shall ensure that there is always a presence at the worksite during the construction stage to account for absences and the long working hours that may occur throughout the duration of a project such as this.

The Consultant shall include a fully detailed schedule of daily rates for the site supervision team. The rate shall encompass all variables for each site team member including but not limited to basic salary, travel, subsistence, supervision equipment and working outside normal construction hours.

The duration of the site supervision contract shall extend from the signing of the Contract with the selected construction firm to the signing of the Certificate of Substantial completion for the Project. A reduced level of supervision may be necessary, in advance of contract signing, through the defects notification phase and to cover unforeseen conditions such as particular weather events. Should this be the case, it shall be agreed on a case by case basis with the Consultant.

12.1.2 Commissioning / Defects Notification Period

The Consultant shall make its team available through the defects notification stage of the project to provide input as required into the completion of As-Built drawings and to the preparation of project related final accounts and contractual close-out. Additionally the Consultant may be requested to maintain a presence on site for the supervision of remaining construction works or the repair of identified defects.

Where the UNICEF requires that the Consultant performs additional services after the issue of the certificate of substantial completion, the extent of these services shall be agreed on a case by case basis and shall be deemed to be an Additional Service under the Contract.

13. Feasibility Study, data collection, and analysis

13.1 Objectives of the Feasibility Study, data collection, and analysis

The Consultant shall use internationally recognized design standards/codes in the execution of the project. Details of the design codes to be used by the Consultant, for each element of the works shall be stated in its project bid submission and shall be to the approval of the UNICEF.

- ***Introduction and Project Context:*** *The consultancy firm is tasked with conducting a comprehensive feasibility study for [Project Name]. The primary goal is to provide stakeholders with a thorough understanding of the project's viability and potential challenges. The study will*

encompass various aspects, including market dynamics, technical requirements, financial feasibility, and social and environmental impact.

- ***Market Analysis:*** *The consultancy firm will delve into a detailed market analysis to identify and evaluate the target market segments for the proposed project. This involves understanding demographic factors, consumer preferences, and market trends. The goal is to provide insights into the demand for the product or service, potential market share, and competitive positioning.*
- ***Technical Assessment:*** *A critical component of the study is a comprehensive technical assessment. The consultancy firm will identify and analyze the technical requirements of the project. This includes evaluating the available technology solutions, potential challenges, and proposing strategies to overcome technical hurdles. The objective is to ensure that the proposed project is technically feasible and aligned with industry standards.*
- ***Financial Feasibility:*** *The consultancy firm will conduct an in-depth financial analysis to ascertain the economic viability of the project. This involves preparing detailed cost estimates, revenue projections, and assessing the return on investment. The objective is to provide stakeholders with a clear understanding of the project's financial feasibility, including potential risks and mitigation strategies.*
- ***Economic Impact Assessment:*** *Beyond financial considerations, the study will also assess the broader economic impact of the project. This includes estimating job creation, income generation, and the overall contribution to the local and regional economy. The objective is to provide a holistic view of the project's economic significance.*
- ***Social and Environmental Impact Assessment:*** *Recognizing the importance of social and environmental responsibility, the consultancy firm will conduct a thorough assessment of the project's potential social and environmental impacts. This includes evaluating effects on the local community, cultural heritage, and proposing measures to mitigate any adverse impacts. The objective is to ensure compliance with ethical standards and regulatory requirements.*
- ***Legal and Regulatory Compliance:*** *The consultancy firm will identify and analyze relevant laws and regulations that may impact the project. This involves assessing the feasibility of obtaining necessary permits and approvals. The objective is to ensure that the project adheres to legal requirements, minimizing the risk of legal complications.*
- ***Risk Analysis:*** *A crucial aspect of the study is the identification and analysis of potential risks associated with the project. The consultancy firm will conduct a comprehensive risk analysis,*

covering financial, technical, legal, and market-related risks. The objective is to develop a robust risk mitigation plan, including contingency measures to address unforeseen challenges.

- ***Data Collection and Analysis:*** *The consultancy firm will employ a systematic approach to data collection, utilizing both primary and secondary sources. Data analysis will involve employing statistical and analytical methods to derive meaningful insights. The objective is to ensure that decision-makers are equipped with accurate and reliable information for informed decision-making.*
- ***Reporting and Documentation:*** *Throughout the project, the consultancy firm will provide regular progress reports, ensuring transparency and communication with stakeholders. The final deliverables will include an Inception Report, a Draft Feasibility Study for review and feedback, and a Final Feasibility Study incorporating feedback received. The objective is to provide stakeholders with a comprehensive and well-documented study that serves as a basis for decision-making.*

13.2 Scope of work for the feasibility study, data collection, and analysis

13.2.1. Literature Review:

- *Conduct a comprehensive review of relevant literature, research papers, and industry reports.*
- *Summarize key findings and insights related to the project.*

13.2.2. Stakeholder Engagement:

- *Identify and engage with key stakeholders, including local communities, government entities, and potential partners.*
- *Conduct interviews, surveys, or focus group discussions to gather stakeholder perspectives.*

13.2.3. Market Analysis:

- *Define and analyze the target market segments, considering demographics, psychographics, and geographic factors.*
- *Evaluate market trends, including emerging technologies, consumer preferences, and industry innovations.*
- *Assess the potential demand for the proposed project.*

13.2.4. Technical Assessment:

- *Identify the technical requirements and specifications of the project.*
- *Evaluate the availability and suitability of technology solutions.*
- *Assess potential technical challenges and propose mitigation strategies.*

13.2.5. Financial Analysis:

- *Develop a detailed cost estimate for the project, covering capital and operational expenses.*
- *Evaluate revenue streams and projections, considering pricing strategies and market demand.*
- *Perform a financial feasibility analysis, including ROI, payback period, and NPV calculations.*

13.2.6. Economic Impact Assessment:

- *Analyze the economic impact of the project on the local and regional economy.*
- *Estimate job creation potential and income generation.*
- *Assess the potential contribution to GDP and other economic indicators.*

13.2.7. Social and Environmental Impact Assessment:

- *Conduct a social impact assessment, considering potential effects on the community, cultural heritage, and quality of life.*
- *Assess potential environmental impacts and propose mitigation measures.*
- *Ensure compliance with social and environmental regulations.*

13.2.8. Legal and Regulatory Compliance:

- *Identify relevant laws and regulations affecting the project.*
- *Assess the feasibility of obtaining necessary permits and approvals.*
- *Evaluate legal risks and propose risk mitigation strategies.*

13.2.9. Risk Analysis:

- *Identify and assess potential risks associated with the project, including financial, technical, legal, and market-related risks.*
- *Develop a comprehensive risk mitigation plan, including contingency measures.*

13.2.10. Data Collection and Analysis:

- *Develop a detailed data collection plan, specifying sources, methods, and tools.*
- *Collect primary and secondary data related to market trends, financial indicators, and other relevant aspects.*
- *Use appropriate statistical and analytical methods for data analysis.*

13.2.11. Project Timeline and Milestones:

- *Develop a project timeline with well-defined milestones.*
- *Identify critical path activities and dependencies.*
- *Ensure that the project can be implemented within the desired timeframe.*

13.2.12. Reporting and Documentation:

- *Prepare an Inception Report outlining the proposed approach, methodology, and work plan.*
- *Submit a Draft Feasibility Study for review and feedback.*
- *Provide a Final Feasibility Study incorporating feedback received.*

13.3 Deliverables for the feasibility study, data collection, and analysis

13.3.1 Inception Report:

- ***Description:*** *A document outlining the proposed approach, methodology, and work plan for the feasibility study.*
- ***Content:***

    - *Introduction and background of the project.*
    - *Objectives and scope of the feasibility study.*
    - *Proposed methodology for data collection and analysis.*
    - *Work plan with milestones and timelines.*
    - *Preliminary risk assessment and mitigation strategies*

13.3.2 Data Collection Plan:

- ***Description:*** *A detailed plan specifying the sources, methods, and tools for collecting primary and secondary data.*
- ***Content:***

    - *Identification of data sources (surveys, interviews, literature, databases, etc.).*
    - *Sampling techniques and sample size determination.*
    - *Data collection tools and instruments.*
    - *Quality assurance measures for data accuracy and reliability.*

13.3.3. Draft Feasibility Study:

- ***Description:*** *A preliminary version of the feasibility study document for review and feedback.*

- ***Content:***
    - *Executive summary summarizing key findings and recommendations.*
    - *Detailed analysis of market dynamics, technical aspects, financial feasibility, and economic impact.*
    - *Social and environmental impact assessment.*
    - *Legal and regulatory compliance review.*
    - *Risk analysis and mitigation strategies.*
    - *Preliminary financial statements and projections.*
    - *Initial recommendations based on the analysis.*

13.3.4. Progress Reports:

- ***Description:*** Regular updates on the progress of the feasibility study.
- ***Content:***
    - *Overview of tasks completed during the reporting period.*
    - *Identification of any challenges or deviations from the original plan.*
    - *Any adjustments made to the methodology or work plan.*
    - *Issues requiring clarification or decisions from stakeholders.*

13.3.5. Final Feasibility Study:

- ***Description:*** *The comprehensive and finalized document incorporating feedback from stakeholders.*
- ***Content:***
    - *Executive summary highlighting key findings and recommendations.*
    - *Detailed analysis of market, technical, financial, economic, social, and environmental aspects.*
    - *Legal and regulatory compliance review.*
    - *Refined risk analysis and mitigation strategies.*
    - *Finalized financial statements and projections.*
    - *Conclusive recommendations and strategic insights for decision-making.*

13.3.6. Presentation of Findings:

- ***Description: A formal presentation of the feasibility study findings to stakeholders.***
- ***Content:***
    - *Overview of the study objectives and methodology.*
    - *Presentation of key findings and insights.*
    - *Discussion of risks and recommended mitigation strategies.*
    - *Q&A session for stakeholders to seek clarification and provide input.*

13.3.7 Handover and Knowledge Transfer:

- ***Description:*** *Transfer of all relevant documents, data, and knowledge to the UNICEF for future reference.*
- ***Content:***
    - *Complete set of final reports and documentation.*
    - *Data sets, tools, and methodologies used in the analysis.*
    - *Any supplementary materials, reference documents, or resources.*

14. Urban Design

14.1 Objectives of the Urban Design

Introduction:

The Urban Design Consultancy is tasked with spearheading a transformative initiative aimed at creating a sustainable and vibrant urban environment within the [city/region]. The overarching goal is to integrate innovative design principles, promote community well-being, and enhance the overall quality of urban life. The consultancy will engage in a comprehensive process that includes analysis, stakeholder collaboration, and the creation of a robust urban design plan.

- ***Comprehensive Urban Analysis:***

  The consultancy's first objective is to conduct an in-depth analysis of the existing urban landscape. This involves assessing current infrastructure, land use patterns, transportation networks, and public spaces. The aim is to understand the strengths, weaknesses, opportunities, and threats within the urban context, forming the basis for informed design decisions.

- ***Stakeholder Engagement and Collaboration:***

  A key objective is to engage with diverse stakeholders, including government authorities, local communities, businesses, and environmental organizations. Through workshops, public forums, and collaborative sessions, the consultancy aims to gather valuable insights, aspirations, and concerns from various perspectives. This inclusive approach ensures that the urban design plan reflects the needs and desires of the community.

- ***Vision and Guiding Principles:***

  The consultancy will work towards defining a clear vision and a set of guiding principles that will steer the urban design project. This involves distilling the collective aspirations of the community

and aligning them with sustainable and innovative design practices. The vision will serve as a compass, guiding the development of a cohesive and inspiring urban environment.

- ***Comprehensive Urban Design Plan:***

  The core objective is the creation of a comprehensive urban design plan that integrates various facets of urban development. This includes proposing innovative land-use zoning, green spaces, transportation networks, and architectural guidelines. The plan will embody principles of sustainability, resilience, and inclusivity, fostering a sense of place and identity.

- ***3D Visualizations and Simulations:***

  The consultancy aims to employ advanced visualization techniques to bring the proposed urban design concepts to life. 3D visualizations and simulations will be developed to provide stakeholders and the community with a tangible understanding of how the urban environment will evolve. This ensures transparent communication and facilitates meaningful feedback.

- ***Implementation Strategy:***

  A crucial objective is the development of a detailed implementation strategy. This involves breaking down the urban design plan into phased actions, complete with timelines and cost estimates. The consultancy will propose strategies for funding, resource allocation, and collaboration among various stakeholders, ensuring a practical and achievable roadmap for urban transformation.

- ***Feasibility Studies:***

  Feasibility studies will be conducted for key components of the urban design plan. This involves assessing the economic, social, and environmental viability of proposed initiatives. The objective is to provide decision-makers with a thorough understanding of potential challenges and opportunities, allowing for informed decision-making.

- ***Sustainable Urban Development Solutions:***

  The consultancy will prioritize the integration of sustainable development solutions within the urban design plan. This includes proposals for green infrastructure, energy-efficient buildings, and strategies for mitigating the environmental impact. The objective is to create a resilient and environmentally conscious urban environment.

- ***Stakeholder Communication and Education:***

  Communication and education are integral to the consultancy's objectives. The firm aims to keep stakeholders informed at every stage of the process, fostering a sense of ownership and commitment to the proposed urban design plan. Public engagement and education programs will be designed to ensure that the community understands the benefits and implications of the proposed changes.

- ***Continuous Monitoring and Adaptation:***

  Throughout the project, the consultancy will implement a monitoring and adaptation framework. Regular progress reports, feedback loops, and assessment mechanisms will be established to ensure that the urban design plan remains dynamic and responsive to changing needs and circumstances.

14.2 Scope of work for the Urban design

14.2.1. Preliminary Analysis:

a. Site Assessment:

- *Conduct a comprehensive analysis of the existing urban context, including land use, infrastructure, and public spaces.*
- *Identify key features, strengths, weaknesses, and opportunities for improvement.*

b. Stakeholder Analysis:

- *Identify and categorize key stakeholders, including government bodies, local communities, businesses, and advocacy groups.*
- *Assess their interests, concerns, and expectations related to urban design.*

14.2.2. Vision and Guiding Principles:

a. Workshops and Charrettes:

- *Facilitate interactive workshops and charrettes to engage stakeholders in defining a collective vision for the urban area.*
- *Establish a set of guiding principles that align with the vision and address the identified concerns.*

b. Conceptualization:

- *Develop initial conceptual designs and visual representations based on the established vision and principles.*
- *Gather feedback from stakeholders and refine concepts accordingly.*

14.2.3. Comprehensive Urban Design Plan:

a. Land Use Planning:

- *Propose innovative and sustainable land-use zoning considering residential, commercial, industrial, and recreational areas.*
- *Integrate mixed-use development strategies to enhance walkability and connectivity.*

b. Transportation Planning:

- *Design an efficient and integrated transportation network, considering public transit, pedestrian pathways, and cycling infrastructure.*
- *Prioritize solutions that reduce traffic congestion and promote sustainable modes of transport.*

c. Green Spaces and Public Realm:

- *Design and allocate green spaces, parks, and public plazas to enhance the quality of life.*
- *Integrate landscape architecture principles for environmental sustainability.*

d. Architectural Guidelines:

- *Develop architectural guidelines and standards to ensure a cohesive and aesthetically pleasing urban fabric.*

- *Encourage designs that align with the cultural and historical context of the area.*

e. 3D Visualizations:

- *Create detailed 3D visualizations and simulations to communicate the proposed urban design concepts effectively.*
- *Ensure visualizations provide insights into the spatial relationships and aesthetics of the design.*

14.2.4. Implementation Strategy:

a. Phased Implementation Plan:

- *Develop a phased implementation strategy with timelines, milestones, and a clear sequence of actions.*
- *Identify short-term and long-term projects, prioritizing key interventions.*

b. Cost Estimates:

- *Provide detailed cost estimates for each phase of the implementation plan.*
- *Identify potential funding sources and financial models for sustaining the urban development initiatives.*

14.2.5. Feasibility Studies:

a. Economic Feasibility:

- *Conduct economic feasibility studies for key components of the urban design plan.*
- *Assess the economic impact of proposed developments on the local economy.*

b. Social Impact Assessment:

- *Conduct a social impact assessment to understand the effects of the urban design plan on local communities.*
- *Identify potential social benefits and challenges.*

c. Environmental Impact Assessment:

- *Assess the environmental impact of the proposed developments.*
- *Propose sustainable solutions to minimize the ecological footprint.*

14.2.6. Stakeholder Communication and Engagement:

a. Communication Plan:

- *Develop a comprehensive communication plan to keep stakeholders informed at each stage of the project.*
- *Utilize various channels, including public meetings, online platforms, and media.*

b. Community Workshops:

- *Conduct additional community workshops and engagement sessions during the detailed design and implementation phases.*
- *Collect feedback and insights to refine the urban design plan.*

14.2.7. Documentation and Reporting:

a. Regular Progress Reports:

- *Provide regular progress reports to stakeholders, highlighting completed tasks, challenges, and achievements.*
- *Share insights gained from stakeholder engagement and feedback.*

b. Final Documentation:

- *Prepare a comprehensive final report that includes the detailed urban design plan, implementation strategy, and all relevant documentation.*
- *Include 3D visualizations, feasibility study results, and a compilation of stakeholder feedback.*

14.2.8. Monitoring and Evaluation:

a. Monitoring Framework:

- *Establish a monitoring framework to assess the effectiveness of implemented interventions.*
- *Develop key performance indicators to measure the success of the urban design plan over time.*

b. Adaptation Mechanism:

- *Create a mechanism for ongoing adaptation, allowing for adjustments to the urban design plan based on changing circumstances or emerging opportunities.*
- *Ensure continuous engagement with stakeholders for feedback and updates.*

14.3 Deliverables of the Urban Design

The deliverables of an Urban Design Consultancy are critical components that encapsulate the findings, proposals, and plans developed throughout the project. A comprehensive set of deliverables ensures effective communication, transparency, and usability of the urban design plan. Below is a detailed narrative outlining the key deliverables:

14.3.1. Inception Report:

The consultancy will initiate the project by delivering an Inception Report. This document will provide a detailed overview of the proposed approach, methodologies, and work plan. It will include a refined scope of work, stakeholder engagement strategy, and initial timelines.

14.3.2. Preliminary Analysis and Vision Report:

Following the initial stages of site assessment and stakeholder engagement, the consultancy will deliver a Preliminary Analysis and Vision Report. This document will encapsulate the findings from the site assessment and the collective vision and guiding principles derived from stakeholder workshops and charrettes.

14.3.3. Conceptual Design and 3D Visualizations:

The consultancy will develop conceptual designs based on the established vision and principles. These designs will be complemented by detailed 3D visualizations and simulations, providing a tangible representation of the proposed urban design concepts. These visualizations will aid stakeholders in understanding the spatial dynamics and aesthetic qualities of the proposed changes.

14.3.4. Comprehensive Urban Design Plan:

The cornerstone deliverable will be the Comprehensive Urban Design Plan. This document will integrate all aspects of urban planning, including land use, transportation, green spaces, architectural guidelines, and infrastructure. It will present a cohesive and holistic vision for the future development of the urban area.

14.3.5. Implementation Strategy and Cost Estimates:

The consultancy will provide a detailed Implementation Strategy, outlining the phased approach to realizing the urban design plan. This will include timelines, milestones, and a clear sequence

of actions. Additionally, the consultancy will present detailed cost estimates for each phase of the implementation plan, identifying potential funding sources and financial models.

14.3.6. Feasibility Studies Report:

Feasibility studies for key components of the urban design plan will be compiled into a comprehensive report. This report will include economic, social, and environmental impact assessments, providing stakeholders with a clear understanding of the viability and potential challenges associated with the proposed developments.

14.3.7. Stakeholder Communication and Engagement Documentation:

The consultancy will document all aspects of stakeholder communication and engagement, including records of community workshops, public meetings, and online interactions. This documentation will provide insights into stakeholder perspectives, concerns, and feedback, contributing to the transparency and inclusivity of the process.

14.3.8. Regular Progress Reports:

Throughout the project, the consultancy will submit regular progress reports. These reports will highlight completed tasks, challenges faced, and achievements made during each reporting period. They will serve as a tool for communication with stakeholders and a means of tracking the project's overall progress.

9. Final Urban Design Plan and Documentation:

The culmination of the project will be the delivery of the Final Urban Design Plan and Documentation. This comprehensive report will include the refined urban design plan based on stakeholder feedback, a detailed implementation strategy, final 3D visualizations, and all relevant documentation. It will serve as a definitive guide for decision-makers and stakeholders involved in the future development of the urban area.

14.3.10. Monitoring and Evaluation Framework:

The consultancy will establish a Monitoring and Evaluation Framework as a deliverable. This framework will include key performance indicators, mechanisms for ongoing assessment, and guidelines for adapting the urban design plan based on evolving circumstances.

14.3.11. Knowledge Transfer and Handover:

In the final stages of the project, the consultancy will facilitate knowledge transfer and handover. This will include providing the UNICEF with all relevant documents, data sets, and tools used in the analysis and design processes. It ensures that the UNICEF is well-equipped to manage and implement the urban design plan independently.

15. Greening for Building Institutions

15.1 Objective Greening for Building Institutions

The overarching objective of our consultancy firm specializing in "Greening for Building Institutions" is to facilitate a comprehensive transformation towards sustainable and environmentally responsible practices within the targeted institution. Through meticulous assessments, strategic planning, and effective implementation, our goal is to enhance the institution's overall environmental performance, reduce its ecological footprint, and foster a culture of sustainability.

- *Energy Efficiency and Certification:*
  We aim to significantly improve the energy efficiency of the institution's buildings, leading to a tangible reduction in energy consumption and operational costs. By pursuing and obtaining recognized certifications such as LEED or BREEAM, we aspire to showcase the institution's commitment to environmentally conscious construction and operation.

- *Environmental Impact Reduction:*
  Our objective is to minimize the institution's environmental impact by implementing measures that substantially reduce carbon emissions, water consumption, and waste generation. This holistic approach aligns with the institution's responsibility to contribute to the preservation of the environment and natural resources.

- *Regulatory Compliance:*
  We are committed to ensuring the institution's full compliance with local and national environmental regulations and standards. Our objective is to identify and rectify any non-compliance issues promptly, fostering a foundation of legal and ethical environmental stewardship.

- *Renewable Energy Integration:*
  The incorporation of renewable energy sources, such as solar and wind, is a key objective. By diversifying the institution's energy mix, we seek to enhance resilience, reduce dependence on non-renewable resources, and contribute to a more sustainable energy landscape.

- *Water Conservation and Waste Management:*
  Our goal is to implement water-efficient technologies and waste management practices that significantly reduce overall water consumption and waste generation. This approach aligns with the principles of responsible resource management and promotes a circular economy.

- *Sustainable Materials and Design:*
  Through the recommendation of eco-friendly construction materials and sustainable design practices, we aim to influence the institution's building processes positively. This objective contributes to the creation of structures that harmonize with the environment and prioritize longevity and efficiency.

- *Employee Engagement and Green Committees:*
  We seek to foster a culture of sustainability by engaging and educating institution staff through comprehensive training programs. The establishment of green committees will further promote ongoing employee involvement, ensuring that sustainability becomes an integral part of the institution's ethos.

- *Monitoring, Reporting, and Financial Analysis:*
  Our objective includes the establishment of a robust monitoring and reporting system, providing regular updates on the performance of green initiatives. Additionally, we aim to conduct a thorough financial analysis, demonstrating the economic viability and positive return on investment associated with the implemented sustainability measures.

- *Long-Term Sustainability Planning:*
  We are dedicated to assisting the institution in developing a long-term sustainability plan. This plan will serve as a roadmap for continuous improvement, ensuring that green practices are not just a short-term initiative but an enduring aspect of the institution's operations.

- *Innovation in Green Technologies:*
  Through ongoing research, we aim to identify and recommend innovative green technologies and practices. This objective reflects our commitment to staying at the forefront of sustainable building solutions and encouraging a culture of continuous improvement.

- *UNICEF Satisfaction:*
  Above all, our objective is to ensure the satisfaction of our UNICEFs. We will work collaboratively with the institution's stakeholders, seeking feedback and adapting our strategies to meet their unique needs, thereby fostering a successful and enduring partnership.

15.2 Scope of work and Deliverables of Greening for building institutions

15.2.1 Project Initiation:

- *Inception Report: A detailed report outlining the consultancy firm's understanding of the project, including goals, objectives, and initial plans.*

15.2.2 Baseline Assessment:

- *Energy Efficiency Audit Report: An assessment of the current energy consumption patterns, along with recommendations for improvement.*
- *Environmental Impact Assessment Report: Documentation of the institution's current environmental impact, waste generation, and water usage.*

15.2.3 Regulatory Compliance Check:

- *Compliance Report: A comprehensive report confirming that the building adheres to local and national environmental regulations.*

15.2.4 Green Building Standards:

- *LEED or BREEAM Certification Plan: A detailed plan outlining the steps required to achieve LEED or BREEAM certification, including timelines and resource requirements.*

15.2.5 Energy Management Strategies:

- *Renewable Energy Integration Plan: Recommendations for incorporating renewable energy sources, along with a feasibility study.*
- *Energy-Efficient Systems Proposal: A proposal for implementing energy-efficient HVAC systems, lighting upgrades, and other relevant technologies.*

15.2.6 Water Conservation Measures:

- *Water-Efficient Fixtures Proposal: Recommendations for installing water-efficient fixtures and appliances.*
- *Greywater Systems Plan: A plan for implementing greywater recycling systems.*

15.2.7 Waste Management Plan:

- *Waste Reduction Strategy: A detailed plan for minimizing waste generation, including recycling programs and sustainable procurement practices.*
- *Composting Initiative Proposal: Recommendations for introducing composting initiatives for organic waste.*

15.2.8 Green Materials and Design:

- *Sustainable Materials Recommendations: A list of eco-friendly construction materials and finishes suitable for the institution.*
- *Passive Design Strategies Report: Suggestions for incorporating passive design strategies to optimize natural lighting and ventilation.*

15.2.9 Employee Engagement Initiatives:

- *Training Program Outline: An outline of training programs aimed at raising awareness about sustainable practices.*
- *Green Committees Proposal: A proposal for establishing committees to promote and implement green initiatives within the institution.*

15.2.10 Monitoring and Reporting Framework:

- *Performance Monitoring System: Details of the system for monitoring the ongoing performance of green initiatives.*
- *Regular Reporting Structure: A plan for providing regular reports on energy savings, waste reduction, and other sustainability metrics.*

15.2.11 Financial Analysis:

- *Cost-Benefit Analysis Report: A comprehensive analysis demonstrating the financial advantages of implementing green initiatives.*
- *Return on Investment (ROI) Calculation: Calculations showcasing the potential return on investment for sustainability measures.*

15.2.12 Future Sustainability Planning:

- *Long-Term Sustainability Plan: Assistance in developing a long-term sustainability plan for continuous improvement.*
- *Innovation Recommendations: Information on emerging green technologies and practices for future integration*

15.2.13. Project Management:

- *Define the project management structure, including roles, responsibilities, and communication protocols.*
- *Establish milestones and deliverable deadlines.*

15.2.14. Documentation and Reporting:

- *Maintain comprehensive documentation of all assessments, plans, and recommendations.*
- *Provide regular progress reports and a final comprehensive report at the conclusion of the project.*

15.2.15. UNICEF Collaboration:

- *Foster collaboration with the institution's stakeholders and decision-makers throughout the project.*
- *Seek feedback and adjust strategies based on UNICEF input.*

15.2.16. Training and Capacity Building:

- *Conduct training sessions for relevant staff on the operation and maintenance of new green technologies.*
- *Build internal capacity for ongoing sustainability initiatives.*

15.2.17. Final Deliverables:

- *Compile and present a final report summarizing all findings, recommendations, and implemented measures.*
- *Hand over all relevant documentation, certifications, and reports to the UNICEF.*

16. Design, Evaluation & Study on Water Catchment

16.1 The Objective of Design, Evaluation & Study on Water Catchment

comprehensive Design, Evaluation, and study on Water Catchment for the targeted area. The overarching objective of this initiative is to enhance water availability, quality, and sustainability through the implementation of effective catchment strategies. The project aims to address key challenges and opportunities related to water catchment, fostering resilience, and promoting environmentally sound practices.

- *Assessment of Existing Water Catchment Systems:*

1) *Conduct an in-depth evaluation of the current water catchment systems in the designated area.*

2) *Identify strengths, weaknesses, opportunities, and threats associated with existing infrastructure.*

- *Site Selection and Design of New Water Catchment Systems:*

3) *Utilize the findings from the assessment to identify optimal sites for new water catchment systems.*
4) *Design innovative and efficient water catchment structures that align with environmental sustainability principles.*

- *Evaluation of Water Quality and Quantity:*

5) *Undertake a thorough evaluation of water quality and quantity in the catchment area.*
6) *Implement comprehensive monitoring systems to assess changes in water parameters over time.*

- *Hydrological Modeling and Rainwater Harvesting Techniques:*

7) *Develop hydrological models to simulate water flow patterns and predict potential catchment yields.*
8) *Recommend appropriate rainwater harvesting techniques based on local climatic conditions and catchment characteristics.*

- *Community Engagement and Capacity Building:*

9) *Engage with local communities to understand their water needs, concerns, and aspirations.*
10) *Conduct capacity-building programs to empower communities in the sustainable management and maintenance of water catchment systems.*

- *Environmental Impact Assessment:*

11) *Assess the potential environmental impact of proposed water catchment initiatives.*
12) *Develop mitigation strategies to minimize adverse effects and enhance ecological compatibility.*

- *Regulatory Compliance and Permitting:*

13) *Ensure compliance with local and national regulations governing water catchment.*
14) *Facilitate the acquisition of necessary permits and approvals for proposed water catchment projects.*

- *Cost-Benefit Analysis:*

15) *Conduct a comprehensive cost-benefit analysis to determine the economic viability of proposed water catchment interventions.*
16) *Provide recommendations for cost-effective and sustainable solutions.*

- *Climate Resilience and Adaptation Strategies:*

17) *Integrate climate resilience considerations into the design and planning of water catchment systems.*
18) *Develop adaptive strategies to address potential changes in precipitation patterns and water availability.*

- *Stakeholder Collaboration and Partnerships:*

19) *Collaborate with relevant stakeholders including government agencies, NGOs, and local communities.*
20) *Facilitate partnerships for funding, implementation, and long-term maintenance of water catchment projects.*

- *Documentation and Knowledge Transfer:*

21) *Document all aspects of the Design, Evaluation & Study on Water Catchment.*
22) *Transfer knowledge and insights gained to local authorities and community members for sustainability.*

- *Final Report and Recommendations:*

23) *Compile a comprehensive final report presenting all findings, recommendations, and proposed water catchment designs.*
24) *Provide a roadmap for the phased implementation of recommended interventions*

16.2 The Scope of work & Deliverables of Design, Evaluation & Study on Water Catchment

16.2.1 Project Initiation and Planning:

- *Conduct a project kick-off meeting with stakeholders to establish project goals, timelines, and roles.*
- *Develop a detailed project plan outlining activities, milestones, and resource requirements.*

16.2.2 Existing Water Catchment Systems Assessment:

- *Undertake a comprehensive assessment of the current water catchment systems in the designated area.*
- *Identify and document the strengths, weaknesses, opportunities, and threats associated with existing infrastructure.*

16.2.3 Site Selection and New Water Catchment Systems Design:

- *Utilize findings from the assessment to identify optimal sites for new water catchment systems.*
- *Develop detailed designs for new water catchment structures, considering environmental sustainability and community needs.*

16.2.4 Water Quality and Quantity Evaluation:

- *Implement a thorough evaluation of water quality and quantity in the catchment area.*
- *Install monitoring systems to track changes in water parameters over time.*

16.2.5 Hydrological Modeling and Rainwater Harvesting Techniques:

- *Develop hydrological models to simulate water flow patterns and predict potential catchment yields.*
- *Recommend specific rainwater harvesting techniques based on local climatic conditions and catchment characteristics.*

16.2.6 Community Engagement and Capacity Building:

- *Engage with local communities to understand water needs, concerns, and aspirations.*
- *Conduct capacity-building programs to empower communities in the sustainable management of water catchment systems.*

16.2.7 Environmental Impact Assessment:

- *Conduct an environmental impact assessment of proposed water catchment initiatives.*
- *Develop strategies to mitigate potential adverse effects and enhance ecological compatibility.*

16.2.8 Regulatory Compliance and Permitting:

- *Ensure compliance with local and national regulations governing water catchment.*
- *Facilitate the acquisition of necessary permits and approvals for proposed water catchment projects.*

16.2.9 Cost-Benefit Analysis:

- *Perform a comprehensive cost-benefit analysis to determine the economic viability of proposed water catchment interventions.*
- *Provide recommendations for cost-effective and sustainable solutions.*

16.2.10 Climate Resilience and Adaptation Strategies:

- *Integrate climate resilience considerations into the design and planning of water catchment systems.*
- *Develop adaptive strategies to address potential changes in precipitation patterns and water availability.*

16.2.11 Stakeholder Collaboration and Partnerships:

- *Collaborate with relevant stakeholders, including government agencies, NGOs, and local communities.*
- *Facilitate partnerships for funding, implementation, and long-term maintenance of water catchment projects.*

16.2.12 Documentation and Knowledge Transfer:

- *Document all aspects of the Design, Evaluation & Study on Water Catchment, including methodologies and results.*
- *Transfer knowledge and insights gained to local authorities and community members for sustainability.*

16.2.13 Final Report and Recommendations:

- *Compilation of a final report presenting all findings, recommendations, and proposed water catchment designs.*
- *Roadmap for the phased implementation of recommended interventions.*

17. The Objective of Capacity Building

Conducting Capacity building activities for the governmental or any other WASH stakeholders, including on the following fields:

1. Non-Revenue Water Management (NRW) basic and advanced training. The training outcome should increase capacity of the NRW steering committees within the water sector to analyse the water data for a selected DMAs/Zones, and to conduct corrective operational measures to eliminate the water losses on both types, the physical and the administrative.
2. Training on Using Water Distribution Systems most recent software (e.g. water GEM, Water CAD,…etc) that helps in successfully planning, design, and operating water facilities. The training outcome should Increase capacity of the participants to adequate levels to enable them having required skills and basics of good software design of each type of water facility, design concepts, with analysis skills related to the cost effectiveness, and can do practical exercises. The training will include Designing various types of water facilities' structures that will reinforce the water authorities in planning function for the defected and new facilities' structures. The participants will have sufficient knowledge and skills to design water facilities for the required water pressures and discharges considering the various areas' conditions and market determinants.
3. Training on Using GIS and SCADA systems for Water Facilities Mapping and Remote Operation and Control. The training outcome should give insight on most recent technologies used for the integrated management of water sector, including on integrating both GIS and SCADA unit in some of the existing water authorities in Iraq.
4. *Any other training, technical or managerial, can be required to be offered from the LTA holder, for example on the following fields:*
    a. *Solar Power Systems Design basic and advance training including costing, installation, troublshooting, O&M required.*
    b. *ISO training*
    c. *Laboratory water and wastewater testing specialized devices training (within WSP).*
    d. *Integrated Management of Water Resources/Sector*
    e. *Integrated Management of sewerage sector.*
    f. *Any other training related to WASH sector.*
    g. *Flexible network management,*
    h. *Water allocation (water rationing),*

<u>Trainings description:</u>

- Each training session period should be priced per training day per participant, depending on the training requirements and expected results.

- Practical training, including site visit if relevant, and exercises to be included with each training.
- The LTA bidder should refer to the training event management aspects (e.g. suggested methodology, location (city), venue description (space and setting), stationary used, refreshment, equipment used, …etc).
- UNICEF shall make any variation in the theme of the training or increase/decrease number of the trainees that may in its opinion be necessary while the contractor to do what it takes to fulfill that.

Deliverables

- A certification for the trainer/co-trainer should be ensured to be available for each type of training.
- Reliable source/ Training material, with pre and post-evaluation, along with analytical charts for the training knowledge outcome, are needed to be considered.

Reporting requirements:

Final report, the attendance sheets signed by the participants, any needed invoice or receipts of taking over the certificates and/or the handouts of the trainings and upon UNICEF instructions. The submitted documents should also include pre & post-knowledge evaluation that is relevant to the training theme. The evaluation form should be provided by the trainer as well.

Final Report and Recommendations:

A final report will be submitted by the training foundation/the trainer which will include the general overview of the training, topics presented/discussed, main issues raised by the participants (trainees), their performance, main challenges and necessary recommendation as well as future needed training if applicable. The report shall be submitted by the training Foundation to UNICEF in ten working days after the training completion.

Other reporting, if applicable:

Other reporting will include financial reporting, photos, feedback/evaluation by the trainees, and attendance sheet.

Qualification requirements

The contractor shall appoint a qualified trainer with at least five years of professional engineering or relevant experience to work full time in technical trainings and working experience relevant to the themes of the needed trainings, and both the trainer and his assistant should work closely with UNICEF authorized officer and the beneficiary authority/entity focal person for each training to ensure soft implementation of the training activities.

Proposed Budget/Fees for each Training

Name/description of activity	UNICEF cash contribution *[insert currency]*
Training Institute name	
Training Location/City name	
Trainers' fees per day	
Training Assistant/facilitator/s fees per day (one day logistical preparation + Five days training)	
Hall Rent per day	
High quality Stationery for each Participant	
Lunch for each Participant per day	
Refreshments for each Participant per day	
One Banner and Two rolls up	
Any other applicable training fees	
Total Training Fees for the whole period, for each type of training (currency)s	

18 Additional Requirements of The UNICEF

The following additional requirements may or may not be required and will be further detailed on each project brief.

18.1 Design Standards

The Consultant shall use internationally recognized design standards/codes in the execution of the project. Details of the design codes to be used by the Consultant, for each element of the works shall be stated in its project bid submission and shall be to the approval of the UNICEF.

18.2 Reporting

The Consultant will be required to provide progress reports at regular intervals as required by the particular project scope. The report shall detail the work planned, the actual work performed, any complications encountered, milestones reached and the status of the design elements. Delays on the project shall be clearly explained and the Consultant shall provide proposals to recover lost time. The progress report shall be provided in a format acceptable to the UNICEF and a list of proposed Project report headings shall be agreed at project commencement.

18.3 Project Controls

In preparing design submissions, the Consultant shall submit details of the measures that will be put in place to ensure the best practice management of the Project as well as ongoing project control. This shall include:

- *Project Methodology*
- *Project Programme*
- *Quality Control*
- *Health & Safety*

18.3.1 Project Methodology

The Consultant shall submit details of its understanding of the project and its proposals for the execution and management of the project design phases through to project completion. The project methodology shall also include information relating to the management of any sub-consultants and other third parties. The methodology shall be structured such that it will provide a clear understanding of the Consultants proposals for the completion of the project.

18.3.2 Project Programme

As part of its submission documentation, the Consultant shall provide a detailed design programme covering in detail the timeline for the execution of the project. The programme shall reflect the various stages identified in this document and provide a clear outline of the execution of the project.

All project programmes prepared for both the design and construction stage of the project shall be submitted in Gantt chart format utilizing Microsoft Project or other alternative format approved by the UNICEF. Milestone decision/target and reporting dates should be highlighted. The Consultant should note that realistic times must be allowed in the project programme for all consultation and/or decision-making processes.

18.3.3 Quality Control

Details relating to the quality control procedures to be implemented on the Project by the Consultant shall be included as part of the Consultants proposal for each particular project.

18.3.4 Health and Safety

The subject of health and safety and the management of risk is an important aspect all projects. The Consultant shall take into account the requirement to ensure that the project designs are completed such that any dangers to health and safety have been reduced as much as was possible

during the design phase. The Consultant shall include, with the final detailed design package, a summary of any health and safety risks that were considered during the design and if the design was changed to make it safer, details of the changes. This summary shall also alert the contractor to perceived health and safety risk to be mitigated during the construction phase of the project.

18.4 Collateral Equipment

The UNICEF may propose to provide, and in some cases install, certain specialist elements within the Project (such as communications equipment), over and above the requirements detailed in the project scope. Details of the same will be forwarded to the Consultant. In such cases where this occurs, the Consultant shall ensure that all such equipment, materials and elements of the works to be purchased, provided and/or installed by the UNICEF is accurately translated onto the design drawings including the interface of the additions with any other elements of the design.

18.5 Sustainability

The Consultant is encouraged to propose elements that will benefit the sustainability of the project. Options that provide clear cost benefits, efficiency improvements and reduce the environmental impact of the project at the various locations are encouraged. Relevant project areas to be targeted shall include but shall not be limited to power, water and waste management. Any options proposed shall be discussed during the relevant project stage and the UNICEFs approval shall be required prior to implementing any such elements on the Project.

18.6 Conflicts of Interest

Any conflict of interest or potential conflict of interest must be fully disclosed in making the firm's submission or if discovered later, immediately upon such information becoming known.

In particular, any undertaking, development or work being carried out, by the Bidder, a consortium member or individual involved with a consortium, which may affect or be affected by this Project, shall be disclosed to the Employer.

A1.1 The Personnel to be Provided by the UNICEF

No personnel of the UNICEF will be provided to the Consultant.

A1.2 The Equipment to be Provided by the UNICEF

The equipment to be provided by the UNICEF is given in table A1.2 below.

The Consultant warrants to the UNICEF that the equipment will be returned to the UNICEF in the same condition as received, notwithstanding reasonable wear and tear. Any cost associated with replacement or repair will be borne by the Consultant

The Consultant is licensed to use the equipment for the purpose stated only, any use other than for the purpose stated, shall only be at the written permission of the UNICEF

19 analysis of efficiency and effectiveness of mechanical components of water and waste water management systems

The Consultant shall investigate and confirm the best practices in vibration analysis and preventive maintenance that are applicable to the water supply systems within the project scope. The Consultant is required to prepare a comprehensive document that highlights the critical insights and relevant procedures for implementing an effective vibration analysis protocol. This document will be presented in the Vibration Analysis Report.

19.1 Detailed Requirements

Vibration analysis and preventive maintenance are typically associated with Phase 3 of the project life cycle; however, depending on specific project demands, these activities may span across various phases from 1 to 6 as described in the RFP document.

In the preparation of the vibration analysis, the Consultant is expected to address the following requirements:

- *Comprehensive System Description: Provide a detailed description of the water supply system suitable for the report and the subsequent analysis. This description should include all relevant operational activities, such as system start-up, normal operation, maintenance, and shutdown processes.*
- *Identification of Vibration Analysis Needs: The assessment must identify critical components and machinery that require regular monitoring and analysis. The specific vibration standards to be adhered to, such as ISO 18436, should be clearly stated.*
- *Baseline Information: Provide all available baseline information relevant to the mechanical and operational integrity of the project. Details about the quality of the information provided should include the source, recency, reliability testing methods, and any uncertainties.*
- *Best Practice in Preventive Maintenance: Demonstrate how ongoing vibration analysis can be integrated with best practice preventive maintenance strategies. The preferred approach should focus on avoiding, minimizing, and mitigating potential failures.*
- *Monitoring and Adaptive Management Strategies: Detail ongoing monitoring strategies and adaptive management approaches based on real-time data obtained from vibration*

analysis. Proposals should ensure that, based on current technologies, the impacts on system reliability can be effectively minimized over the long term.

- *Alternative Approaches and Technologies: Present feasible alternatives in system configuration or new technologies that may enhance reliability and operational outcomes. Discuss the consequences of not implementing suggested improvements.*
- *Global Best Practices: For emerging or less proven technologies related to vibration analysis, identify and describe any global leading practices in environmental and mechanical management where available.*
- *Cumulative Impact Prediction: Attempt to predict the cumulative impact of system operations on mechanical integrity over time, considering both internal operations and external environmental factors as detected by baseline monitoring.*
- *Consultation and Inclusion: An appropriate consultation program with internal stakeholders (operation teams, maintenance teams) is crucial. The Consultant should work with the project's technical teams to ensure that the vibration analysis practices are practical and tailored to the specific needs of the systems.*
- *Public and Stakeholder Engagement: While primarily technical, the report should also consider the perceptions of safety and reliability by the workforce and potentially affected parties. Include a summary of consultations and how these have influenced the project design and maintenance strategies.*

19.2 Aspects to Be Addressed

The structure of the Vibration Analysis Report shall be agreed with the UNICEF at the start of the project. As a minimum, the report should address:

- *Executive summary*
- *Introduction*
- *Project owner*
- *Outline of the vibration analysis process applicable in the context of the country*
- *Detailed description of the water supply system*
- *Proposed monitoring and maintenance activities*
- *Assessment of critical components*
- *Implementation of best practice preventive maintenance measures*
- *Evaluation of potential risks and mitigation measures*
- *Recommendations for continuous improvement and reliability enhancement*
- *Consolidated description of the project's commitments to implement management measures (including monitoring programs).*

Table A1.2 – Equipment to be provided by the UNICEF

Stage	Item Description	Quantity	Purpose	Duration	Location to be returned

1					
2					
3					
4					
5					
6					

A1.3 The Facilities to be Provided by the UNICEF

The facilities that will be provided to the Consultant and made available by the UNICEF are given in Table A1.3 below.

The facilities shall be returned to the UNICEF without any defects other than normal wear and tear. Where the facilities are for the sole use by the Consultant, it shall satisfy itself as to the condition as received and any defects to be reported to the UNICEF prior to occupation.

Table A1.3 – Facilities to be provided by the UNICEF

Stage		Facility Description	Location	Purpose	Dates Available	Comments / Restrictions
1						
2						

A1.4 The Services to be Provided by the UNICEF

The services that will be carried out and provided by the UNICEF are given in table A1.4 Any inputs required by the UNICEF to carry out the services shall be delivered within any agreed timescale

The Consultant shall be responsible for the co-ordination and programme management of all services to be provided by the UNICEF and shall provide to the UNICEF, notice of the required commencement of the service as stated in table A1.4 below.

Table A1.4 – Services to be provided by the UNICEF

Stage	Service Description	Inputs required by consultant	Purpose	Notice Required	Comments / Restrictions
1					
2					
3					
4					

Scoring Technical Evaluation:

The Bid shall be evaluated based on technical and financial criteria.

The ratio weight between technical and financial criteria is (80:20).

Please refer to Annex A (Technical evaluation criteria)

Technical Evaluation:

-The Bid shall be technically evaluated as Annex 1

-The passing score of the technical criteria is 55 out of 80 See the criteria on the Annex below.

Financial Evaluation:

-The bidder will be financially scored based on the formula below:

Bidder (A) = (Maximum score for price proposal (20 points) x Price of lowest priced proposal among technically passed bidders)/Price of the proposal (A)

-The total weight of the bidder will be the cumulative of the two above formulas (Technical and Financial).

Technical Evaluation

Item	Technical Evaluation Criteria	Weight
1	***Technical Expertise and Experience***	***40 points***
1.1	*Years of experience in the areas of business (0-5 years: 1 point), (6-10 years: 5 points), (11+ years: 10 points)*	*10*
1.2	*Number of similar projects successfully completed (0-2 projects:1 point), (3-5 projects: 5 points), (6+ projects: 10 points).*	*10*
1.3	*Years and educational of expertise for the specialized technical staff that will manage the project with Evidence (Basic: 0 points), (Intermediate: 5 points), (Advanced: 10 points).*	*10*
1.4	*Educational background and relevant certifications of the team leader with Evidence (bachelor's degree: 5 points), (Master's degree: 10 points), (Additional relevant certifications: 5 points).*	*10*
2	***Relevant Project Portfolio***	***10 points***
2.1	*Positive UNICEF testimonials and references (0 points: No testimonials), (3 points: Some positive testimonials), (5 points: Strong positive testimonials).*	*5*

2.2	*Success stories and measurable outcomes in past projects (0 points: No measurable outcomes), (3 points: Some measurable outcomes), (5 points: Well-documented measurable outcomes).*	*5*
3	***Methodology and Approach***	***20 points***
3.1	*Alignment of proposed methodology with project goals (0 points: Poor alignment), (3 points: Partial alignment), (5 points: Strong alignment).*	*5*
3.2	*Comprehensive approach to project execution (0 points: Lack of detail), (5 points: Some detail), (10 points: Detailed and well-structured approach).*	*10*
3.2	*Submission of the risk mitigation plan for this project. (Quality Control Plan, safety plan…etc) Detailed plan/s with clear mitigation measures for each risk type.*	*5*
4	***References***	***10 points***
4.1	*Positive feedback from previous agent (0 points: Negative feedback), (5 points: Mixed feedback), (10 points: Overwhelmingly positive feedback).*	*10*
Total points		**80**