

**REQUEST FOR EXPRESSIONS OF INTEREST  
(CONSULTING SERVICES – FIRM SELECTION)**

**COUNTRY:** Bangladesh.

**NAME OF PROJECT:** Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, BEZA-PRIDE (P170688)

**Credit No.:** IDA-6676 BD

**Assignment Title:** Selection of Design and Supervision Consultant.

**Reference No.:** PMC15-BSMSN-BEZA

The Government of the People's Republic of Bangladesh has received financing from the World Bank toward the cost of the Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project, a project under Bangladesh Economic Zones Authority (BEZA), and intends to apply part of the proceeds for consulting services.

The consulting services ("the Services") include to provide but not limited to the following services commencing from design stage to final handover of the works:

- Surveys required for detailed Engineering Designs and Drawings;
- Detailed Engineering Designs & Drawings (architectural and structural for civil, electrical and electro-mechanical works);
- Ensuring consideration and integration of disaster risks into the engineering and operational design of the infrastructure;
- Technical Specifications;
- Preparation of Bidding Documents in its entirety;
- Detailed Cost Estimates;
- Bill of Quantities;
- Technical Note according to basic infrastructure/works;
- Construction Supervision, Contract Management and relevant services;
- Supervision of implementation of all environmental and social instruments related to the project covering activities both in BSMSN-2 and in the IMD zone (to be implemented through PPP).

The consultant will provide Supervision services for the infrastructure related works to be executed under Public Private Partnership stated below:

- Central Effluent Treatment Plant;
- Desalination plant;
- Rooftop, ground-mounted and floating solar;
- Steam network;
- Biogas plant, waste sorting and material recovery facility;
- Landfill.

**Implementation period** of the Services is from January 01, 2022 to December 31, 2025.

The Terms of Reference (TOR) for the assignment can be found at the following website: [www.beza.gov.bd](http://www.beza.gov.bd). The final updated TOR will be included in the Request for Proposal document to be subsequently issued to only the shortlisted firms after completion of the shortlisting process.

The Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Development Project now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services. The shortlisting criteria are:

1. At least 10 years general experience of the firm (years counting backward from the date of publication of REOI to 1st assignment of firm) in the field of design and supervision of infrastructure works.
2. Specific experience of having successfully completed contracts for Design & Supervision of similar works (Road Network, Storm Water Network, Power Network, Water Supply Network, Sewer Network, Gas pipeline connection, Telecommunication System, Resilient Site upgrade and Building Development, Land development for BSMSN-IMD, and other civil, electrical, mechanical construction works) in terms of number of Contracts, Contract Value, Contract duration and complexity.
3. Specific Experience in Design and Supervision of works executed through PPP arrangement will be an advantage though not mandatory.

Key Experts will not be evaluated at the shortlisting stage.

The attention of interested Consultants is drawn to the World Bank’s “Procurement Regulations for IPF Borrowers” July 2016, Revised November 2020 (“Procurement Regulations”), setting forth the World Bank’s policy on conflict of interest related to the assignment as per paragraph 3.17 of the Procurement Regulations.

Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected. In case of joint venture, each member of the joint venture should have specific design and/or supervision experience in at least some of the similar works indicated above, whereas the joint venture combined should have specific design and supervision experience in most of the similar works indicated above. It is preferred that the joint venture should not include more than four members. The qualifications of subconsultants will not be considered in the evaluation of EOIs for shortlisting purposes.

A Consultant will be selected in accordance with the **Quality and Cost Based Selection (QCBS) method; Market Approach-International** set out in the Procurement Regulations.

Further information can be obtained at the address below during office hours [i.e., 0900 to 1700 hours].

Expressions of interest may be delivered through courier service or in person (hard copy along with an USB drive) or through email to the address below by 16 August 2021; 17:00 HOURS Bangladesh Standard Time (BST). If delivered through email, the client shall not be responsible for the confidentiality of the EOI.



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## PMC 15

### Terms of Reference for Consultancy Services

#### For

#### Design and Supervision Consultant at Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN)

##### 1. Background.

- The Government of Bangladesh has embarked on an ambitious plan to develop new economic zones over the next 15 years to generate additional exports of \$40 billion and promote economic development in lagging regions (The Seventh Five Year Plan of Bangladesh (The 7th Plan)). Bangladesh Economic Zone Authority (BEZA), which is established under the Bangladesh Economic Zone Act 2010, is the driving agency of this massive economic zone development program. BEZA is today an accessible, committed and capable partner to private investors—domestic as international—and it plays a leading coordinating role between government entities in the areas in which it operates. It is regarded as a positive change agent and investors stressed the need for BEZA to maintain its momentum in the implementation of its comprehensive development agenda.
- The BEZA has experience in overseeing complex technical design and the procurement and supervision of large works contracts. It has a core team of qualified high- and middle-level managers. It has handled the procurement and supervision of numerous consulting firms for technical assistance assignments. BEZA's rapid growth has naturally led to staff and consultants playing catch up in some areas to respond to numerous assignments and constant negotiations with public and private partners. The Project will help strengthen core functions for resilient infrastructure, PPPs, investment facilitation and promotion, and master planning. It will also and put in place HR systems and more robust information structures. Extensive consultations with its stakeholders paint a clear picture of an authority with high standards of integrity, dedication to deliver results, and a work ethic that is at the forefront of government entities in Bangladesh.

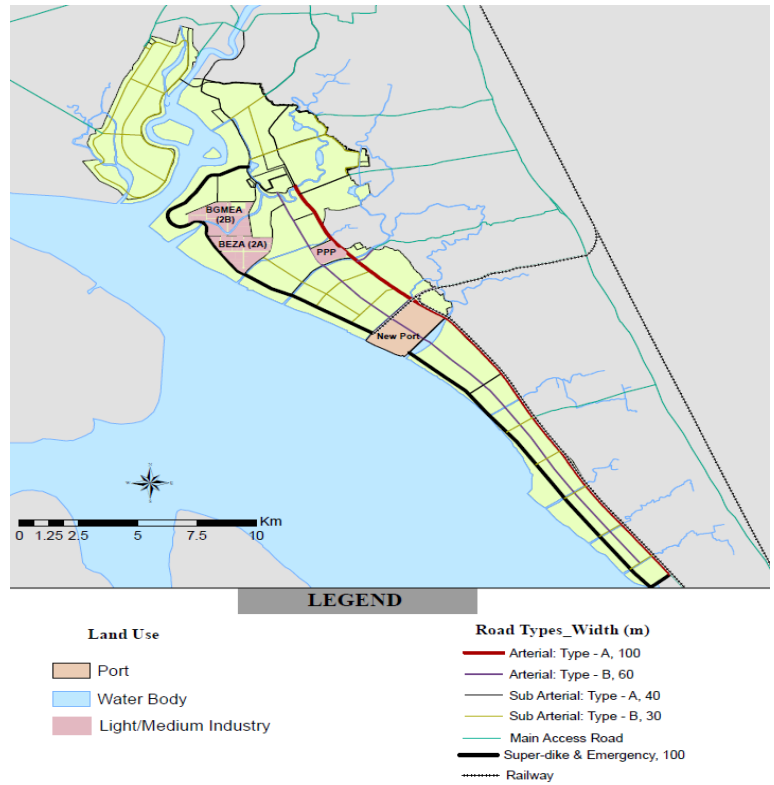
##### 2. Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN)

BEZA is particularly focusing on a new “industrial city” development of approx. 30,000 acres in Mirsarai and Sitakunda Upazila of Chattogram district and Sonagazi Upazila of Feni district named as Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN). BSMSN is anticipated to be the largest industrial city in Bangladesh which will provide a significant contribution to job creation, exports and the domestic market. The BSMSN will adopt green and resilient principles as a critical approach in enhancing its competitiveness, adopting and adapting the “green and resilient industrial park principles” outlined in the International Eco-Industrial Park Framework and the Green and Resilient Economic Zone Guidelines for Bangladesh. BEZA thus intends to procure the services of a consortium of experienced transaction advisors to assist the implementation of works under Private Investment and Digital Entrepreneur (PRIDE) project. The objectives of the PRIDE project are to promote private investment, job creation, and environmental sustainability in participating economic zones and software technology parks in Bangladesh



### 3. Project Area.

- The demand for serviced industrial land is highest along the national transport corridor between metropolitan Dhaka and Cox's Bazar, with focus on south-east Dhaka and Mirsarai-Feni. The biggest undertaking along this corridor is the IDA financed work under the Bangladesh Private Sector Development Support Project (PSDSP), which is developing an economic zone in Mirsarai-Feni referred to as the Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN). The first phase of this development covers nearly 2,000 acres in two plots referred to as BSMSN-1 and BSMSN-2. BSMSN-1 (548 acres) is leased to a joint venture of domestic companies and is not the focus of



this project. The consultant shall provide their services covering areas (i)\_BSMSN 2(on-site and off-site infrastructure) and BSMSN, (ii) Land Development of International Master Developer (IMD) Zone and other areas and (iii) Supervision of implementation of all environmental and social instruments related to the project covering activities in (a) BSMSN-2 and (b) IMD zone (to be implemented through PPP). BSMSN-2 is about 1510.50 acres comprising Mirsarai 2A (938.5 acres). and Mirsarai 2B (572 acres). BSMSN2 is allocated to 104-unit investors/industrial tenants, mainly in light industry/manufacturing. The land for the BSMSN-2 has been raised under the PSDSP and is ready for construction. A super-dike, breakwater and a new access road to the Dhaka-Chattogram highway financed by the GoB are at final stages of completion.

#### 3.1. PRIDE Project .

The PRIDE project has three components to be executed by BEZA through Bangabandhu Sheikh Mujib Shilpa Nagar Development Project. The components are:

- CREATING AN ENABLING ENVIRONMENT FOR PRIVATE INVESTMENT AND SUSTAINABILITY
- DEVELOPING A GREENER AND CLIMATE RESILIENT BSMSN.
  - Sub-component 2.1: Basic infrastructure to implement the Master Plan for the BSMSN;
  - Sub-component 2.2: Introducing sustainable and resilient services; and
- CREATING A PRIVATE MARKET FOR SERVICED INDUSTRIAL LAND

The consultant will be entrusted with the (i) primary responsibility for supervision and monitoring of sub-component 2. 1 incorporating integrated resilient design features and (ii) secondary top supervision of sub-component 2.2.

### 3.2 Component 2. DEVELOPING A GREENER AND CLIMATE RESILIENT BSMSN.

This component supports phased development according to the recently approved Master Plan for the BSMSN. It will finance works, goods, technical assistance and recurrent expenditures for two areas—BSMSN-2 and BSMSN-IMD—to help the development of state-of-the-art green economic zones and set an example for sustainable, resilient and environmentally sound industrial development in Bangladesh. This will be a paradigm shift towards a more sustainable form of development in the country. A formal coordination mechanism for local authorities and stakeholders will be established in the BSMSN based on a new institutional framework document and governance structure. The land in BSMSN-2 has been leased to 104-unit investors/industrial tenants. The following interventions will help optimize utility costs and resource utilization for the tenants and reduce negative externalities and operational risks associated with industrial production.

#### a. Sub-component 2.1: Basic infrastructure and Related Works to implement the Master Plan for the BSMSN.

This sub-component will finance works, goods and technical assistance for onsite and last mile infrastructure in BSMSN-2 as outlined in the Master Plan for BSMSN. Given the risk for natural disasters in the area, the infrastructure will be developed with enhanced resilience to climate impacts. The main investments in works are presented in Table 1 and they will integrate measures resilient to flood and seismic risks.

**Table 1 : Basic infrastructure and related works for BSMSN**

	Description
Road Network	All Weather resilient arterial and non-arterial roads, footpath and plot entry culvert to increase readiness and resilience to natural hazard events (access and evacuation roads during natural disasters and extreme climate events).
Storm Water Network	An integrated stormwater management network for BSMSN-2 including resilient drains, infiltration and retention facilities including nature-based solutions to drain the increased surface run-off from extreme precipitation and flooding.
Power Network	Green and resilient Internal Power Distribution (OHT) Distribution, Transformer, Street Light (LED / Solar), and Internal Substation.
Water Supply Network	Water treatment plant with a maximum capacity of 75 MLD to be developed in modules with potential expansions up to 120 MLD, including green and resilient supply and storage of industrial and potable water considering climate vulnerability and extreme weather conditions (together with the Desalination proposed under 2.2) for BSMSN-2.
Sewer Network	Green and climate resilient sewer network to enhance resilience against heavy rainfall and flooding.
Gas pipeline connection	Connection of the zone with gas pipeline.
Constructed lake	150 acres
Resilient Site	Additional green and gray infrastructure and site development

upgrade and Building Development	measures for BSMSN-2 to enhance resilience against flooding from the increase surface run-off from extreme precipitation and liquefaction resilience performance of flood prevention measures (super dike, embankments, site development) through green and gray investments (open Space/ Land scaping, Greenery along road; Percolation Pits, etc.), infrastructure maintenance, environmental lab and monitoring system, canal development and lining.
Security and Support Amenities	Security/boundary wall, key public buildings and facilities for BSMSN-2 such as fire stations, administrative buildings, and emergency response center, security digital surveillance, including gender-sensitive infrastructure such as separate washrooms for women and men and proper lighting.
Telecoms	Connection of the zone with resilient telecommunication systems
Land development for BSMSN-IMD and other areas.	

N: B:- If there are revisions /changes to the tasks stated above, the Consultant shall be responsible to provide their services on the revised scope of work.

#### 4. Objective(s) of the Consultancy Services:

4.1. **The primary objective of the assignment** is to provide but not limited to the following services commencing from design stage to final handover of the works Stated in Section 3.2 , Sub-Component 2.1 ,Table 1 for BSMSN 2, BSMSN and IMD Zone:

- Surveys required for detailed Engineering Designs and Drawings;
- Detailed Engineering Designs& Drawings (architectural and structural for civil, electrical and electro-mechanical works),
- Ensuring consideration and integration of disaster risks into the engineering and operational design of the infrastructure,
- Technical Specifications,
- Preparation of Bidding Documents in its entirety,
- Detailed Cost Estimates,
- Bill of Quantities
- Technical Note according to basic infrastructure/works;
- Construction Supervision, Contract Management and relevant services
- Supervision of implementation of all environmental and social instruments related to the project covering activities both in BSMSN-2 and in the IMD zone (to be implemented through PPP)

4.2. **Secondary Responsibility.** The consultant will provide their services in the top supervision and provide valuable advice to the Borrower of the infrastructure related works executed under Public Private Partnership stated below:

- Common Effluent Treatment Plant



- Desalination plant:
- Rooftop, ground-mounted and floating solar:
- Steam network:
- Biogas plant, waste sorting and material recovery facility:
- Landfill:

## **I. Scope of Services and Expected Deliverables.**

The services required to be performed by the Consultant are set out below:

- **Assignment A - Design Assignment B – Construction Supervision and Contract Management; and**
- Supervision of implementation of all environmental and social instruments related to the project covering activities both in BSMSN-2 and in the IMD zone

## **II. Assignment A: Design Stage.**

**General Overview: Common key Features to be followed and adhered to in the design of Basic Infrastructure Components (Table 1) for Task 2 and Task 3 are indicated below:**

- Given the risk for natural disasters in the area, and developing a greener and climate resilient BSMSN, the consultant will be responsible for designing/developing the infrastructure stated in component 2.1, (Table 1) with enhanced resilience to climate impacts. The consultant will integrate measures resilient to various hazards, particularly flood and seismic risks to help catalyze the development of state-of-the-art green economic zones and set an example for sustainable, resilient and environmentally sound industrial development in Bangladesh. This will be a paradigm shift towards a more sustainable and resilient form of development in the country. The consultant will also be responsible for design and supervision of investments towards resilient site upgrades and green buildings, including green and gray coastal protection and buffers, water and energy efficiency design for buildings, and site level interventions for subsidence and liquefaction.
- Review and integrate findings and guidelines of two key documents: 1) Bangladesh Green and Resilient Economic Zone (GREZ) Guideline (under review for finalization), and 2) Technical Assessment on Enhancing Competitive, Green and Resilient Industries in Bangladesh: Integrating resilience within the design and costing of BSMSN Economic Zones 2A & 2B. These documents will be shared by the Bank.
- All goods, works, financed under the Project will be procured in accordance with the WB Procurement Regulations for IPF Borrowers, dated July 1, 2016, and as revised in November 2017 and August 2018. The bidding documents would be prepared in accordance with the formats and standards defined in the World Bank guidelines / Central Procurement Technical Unit (CPTU) for procurement of such works. For large contracts to be procured under International Competitive Bidding (ICB) procedure, the Bidding Documents would be prepared using World Bank Standard Bidding Documents for ICB. For National competitive bidding, the





consultant would prepare the bidding documents based on model bidding documents for works prepared by the World Bank. The consultant would be required to include environmental and social specifications in the bidding documents (as part of works' requirement) based on various environmental and social risk management documents such as Environmental and Social Management Plan (ESMP), Labor Management Plan (LMP), Gender Based Violence (GBV) Action Plans etc. Some of these documents were prepared during the project preparation stage and many would be prepared by separate consulting firm(s) to be appointed soon. Hence, the D&S consultants would be required to work closely with the consulting firms to be appointed for those studies. They would also ensure that the Bill of Quantities (BOQ) properly reflect the cost of implementation of the ES requirements. The consultant would prepare Code of conducts to be applicable to the contractors and his sub-contractors following minimum requirements in this regard as mentioned in the World Bank's standard bidding documents. They would add additional requirements if necessary, to address identified issues, informed by relevant environmental and social assessment. The types of issues identified could include risks associated with: labour influx, spread of communicable diseases, Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH) etc. During bid evaluation, they would review the Code of Conduct submitted by the bidders including its implementation arrangement and ensure that the Code of Conducts submitted by the bidders are in line with the requirements of the bidding documents.

- In addition to the above, the services of the Consultant shall include, but are not limited to the following in the preparation of the bidding documents:
  - (i) Preparation of fully coordinated bidding and procurement documentation for all Bid Packages including:
    - Invitation to Bid
    - Conditions of contract
    - Functional and technical specifications
    - Environmental and Social Specifications
    - Drawings, schedules, etc.
  - (ii) The bidding documents reviewed and vetted by the PMU, and finalize bidding documents incorporating PMU's comments
  - (iii) Assistance to the PMU during the bidding process including:
    - Prepare the answers of queries from the Bidders for review by the PMU
    - Attending meetings as required
    - Coordination and assistance to bidders site visits.
  - (iv) Prepare final contract documents for signature.

### **Task 1: Review of Technical Documents.**

The Consultant shall review the progress and identify the bottlenecks, if any, and review the technical documents such as soil test report, structural design, foundation design, drawing, etc. for contract packages prepared by the previous D&S consultant. Based on such review the Consultant, if required, would revise those and provide with most appropriate suggestions to the Project Director to resolve the problems. The Consultant would also review the technical documents prepared by other agencies for delegated works or otherwise.

**Task 2. Preparation of Detailed Engineering Designs, Drawings, Technical Specifications, Bill of Quantities (BOQ), Cost Estimates and Bidding Documents for the components presented below:**

**Components:**

- **Road Network:**
- **Storm Water Network:**
- **Power Network.**
- **Water Supply Network (including Desalination plant).**
- **Sewer Network.**
- **Gas pipeline connection.**
- **Telecommunication System:**
- **Resilient Site upgrade and Building Development.**
- **Land development for BSMSN-IMD.**

**Endorsing and complying to all the features stated under Section I , (Assignment A Design stage), the Consultant shall provide their services in preparing/conducting:** (i) necessary surveys required for detailed engineering designs and drawings; (i) detailed engineering designs (architectural and structural for civil, electrical and electro-mechanical works), (ii) technical specifications, (iii) bidding documents, (iv) cost estimates, (v) Bill of Quantities; and (vi) implementation of social and environmental instruments. The consultant shall ensure that the designs are carried out in accordance with appropriate (international/national) engineering standards and would carry out, but not limited to, the following activities:

- (a) Carry out topographical surveys to an extent enough to select the optimum cluster, grade and level of the structures, to select the optimum location, and to facilitate the adequate determination of required quantities for the construction of the works;
- (b) Carry out geo-technical investigations, which may be additionally required to determine the basic design parameter for the construction of structures, and to locate appropriate construction material (and/or disposal areas as needed) for material and concrete aggregates. In particular, the Consultants will carry out technical, environmental and social impact analysis of any material that may be generated during the construction activities and prepare detailed design for safe disposal and/or plans for the reuse of such materials;
- (c) Prepare design criteria for the detailed designs including supporting computations for the proposed structures – road network (roads, bridges, culverts, embankments etc.), storm water and drainage network, power network, water supply network, sewer network, gas pipe line connection, telecommunication, buildings, land development, constructed lakes/ reservoir, electrical sub-station and distribution systems and other related works according to recognized appropriate (international/national) standards. In preparing the design criteria for resilience measures integrated into the proposed structures, the consultants should consider recommendations from the BSMSN master plan and the WB's technical assessment on resilience measures for BSMSN, as well as the National Green and Resilient Economic Zone Guideline and other international benchmarks as they fit. The structural designs should also comply with existing national building codes



and standards including BNBC 2015. For the constructed lake, the consultant should also consider the WB's preliminary assessment of solar PV (floating) potential to accelerate sustainable utility scale solar generation in BSMSN.

- (d) Drawings will be prepared to the extent that adequate cost estimates will be possible, and to facilitate contractors to prepare their bids and construction drawings. The consultants should consider the following key features in designing the components stated below:
- (i) The design of road network shall comprise all weather resilient arterial and non-arterial roads, footpath and plot entry culvert to increase readiness and resilience to natural hazard events (access and evacuation roads during natural disasters and extreme climate events.)
  - (ii) The design of stormwater management network for BSMSN-2 should be integrated comprising resilient drains, infiltration and retention facilities including nature-based solutions to drain the increased surface run-off from extreme precipitation and flooding.
  - (iii) The design of power network shall include green and resilient Internal Power Distribution (OHT) Distribution, Transformer, Street Light (LED / Solar), and Internal Substation.
  - (iv) The design of water supply network shall be informed by the WB's preliminary assessment on BSMSN-2 water supply plan, and consider options to maximize water circularity, including the preliminary study on desalination plants (and its impacts on the water infrastructures). It shall consist of Water treatment plant with a maximum capacity of 75 MLD to be developed in modules with potential expansions up to 120 MLD, including green and resilient supply and storage of industrial and potable water considering climate vulnerability and extreme weather conditions (together with the Desalination proposed under 2.2) for BSMSN-2.
  - (v) The design sewer network system shall comprise green and climate resilient sewer network to enhance resilience against heavy rainfall and flooding.
  - (vi) The gas pipeline shall be designed to connect the zones
  - (vii) Resilient telecommunication system shall be designed to connect the zones.
  - (viii) Design of additional green and gray infrastructure and site development measures for BSMSN-2 to enhance resilience against flooding from the increase surface run-off from extreme precipitation and liquefaction resilience performance of flood prevention measures (super dike, embankments, site development) through green and gray investments (open Space/ Land scaping, Greenery along road; Percolation Pits, etc.), infrastructure maintenance, environmental lab and monitoring system, canal development and lining.;

- (ix) The design and shape of the constructed lake, in which floating solar panels will be installed, shall consider options to maximize the floating solar potential and be informed by a tropical cyclone risk assessment.
- (x) Land Development in IMD Zone and other areas recommended by the Borrower.
- (e) Prepare detailed drawings, designs and for that purpose carry out surveys, site investigations, analysis, and prepare detailed design reports for function and use design covering the contracting agency's requirements with respect to the procurement, requirements related to the following:
- site conditions and circumstances;
  - technical standard and use;
  - technological innovation to meet the requirements with least cost solutions including technology and construction methods;
  - architectural and aesthetic,
  - functionality, durability and sustainability
  - services according to the acceptable standards,
- (f) Choose appropriate materials, optimize the designs and select least cost options that meet technical requirements and estimate quantities of construction, material, etc. for preparation of bidding documents; Prepare technical specifications, engineering drawings needed for tender documents, bill of quantities (BOQs) and bidding documents.
- (g) Prepare engineer's cost estimates for the works/contracts, and requirements for construction supervision, including facilities, material testing labs, on site or off site as needed, equipment and staffing or any other special requirements.

**Task 3. The services to be provided by the consultant for the following Basic Infrastructure component are comprehensively presented below:.**

- ❖ Security and Support Amenities: Security/boundary wall, key public buildings and facilities for BSMSN-2 such as fire stations, administrative buildings, and emergency response centre, investors club, OSS centre, security digital surveillance, including gender-sensitive infrastructure such as separate washrooms for women and men and proper lighting etc.

**Endorsing and complying to the features stated under Section I , (Assignment A Design Phase), the Consultant shall provide their services but not limited to the following:**

**Stage 1: Reconnaissance of the Selected Land, Soil Testing, Design & Estimates.**

The D&S Consultant shall visit the site, collect data and carry out required activities such as measurement etc. to ascertain how many numbers of soil testing requires, determine the fencing arrangement (say boundary wall including entry etc.).

**The stage consists of following activities:**



**Activity 1.** Carry out soil testing in different locations as per requirement for design purposes.

**Activity 2.** Design and cost estimate with technical specification to prepare bidding documents for construction of all infrastructure components stated in section.

## **Stage 2: Site Evaluation and Design Concepts**

This stage involves pre-construction activities related to site evaluation, and preparation of design based on ESIA reports of various sub-projects, and other relevant pertaining issues in consultation with BEZA. The D&S Consultant is expected to keep the following objectives in mind while preparing the concept design:

- World class facility to facilitate delivery of the proposed services.
- Eco-friendly to minimize the adverse environmental and social impact (e.g. water harvesting, solid waste and water effluent management, sanitary and kitchen waste water management, sound and vibration management, renewable energy, use of eco-friendly material, etc.);
- Energy efficient design;
- Economical to reduce the total cost of ownership;
- Flexible with respect to usage and expansion/contracting in the future;
- Architecture influenced by the local heritage and culture of the region;
- Friendly for disabled and/or physically challenged people.
- Take into consideration the recommendations provided in the environmental and social management plans.

**The stage consists of following activities:**

### **Activity 2.1: Site Evaluation**

The D&S Consultant shall carry out following investigations / assessments at each sites to generate relevant data required for designing the facility:

- Contour survey of the plot;
- Geotechnical investigation for soil bearing capacity;
- Geotechnical investigation for mechanical and chemical analysis of substrata;
- Geotechnical investigation for Ground Water Table and chemical analysis of water;
- Electrical resistivity test;
- High Tension Power Transmission Lines if in vicinity;
- Natural / seasonal water bodies / streams in site and in vicinity of < 2 Km
- Location of plants and trees on site >1.5 m height which need to be cut / relocated
- Signal strength for various telecommunication services providers;
- Collecting metrological data pertaining to maximum, minimum temperatures, humidity and rainfall from the Meteorological Department.
- Re-evaluation of disaster risks (floods, cyclones, earthquake, land subsidence, etc.) that may be unique to the infrastructure type and specific infrastructure site.

### **Activity 2.2: Concept design**



The D&S Consultant shall prepare design basis report by referring the ESIA reports, and other relevant data from authentic sources and in consultation with BEZA technical specialists. The Design shall be as per the design basis report prepared by D&S Consultant and agreed by the Client. The D&S Consultant shall prepare two distinct concept layouts considering effective usage of area and space, natural elements as wind, sunlight, aesthetic values etc. for the onsite and off-site infrastructure. The concept layouts / presentations shall essentially consist of following CAD Drawings in 2D and 3D, Digital walkthrough. The consultant shall review, understand, and apply the findings and guideline of key technical documents already prepared, including but not limited to: WB's technical pre-assessments of green infrastructures in BSMSN Economic Zones 2A & 2B, Bangladesh Green and Resilient Economic Zone (GREZ) Guideline (under review for finalization), and Technical Assessment on Enhancing Competitive, Green and Resilient Industries in Bangladesh: Integrating resilience within the design and costing of BSMSN Economic Zones 2A & 2B.

### **Stage 3: Master Plan Preparation**

The consultant will ensure and coordinate that the activities stated below in accordance with the Master Plan developed for BSMSN. This stage involves preparation of detailed master plan for the entire land plot consisting of the following for the infrastructure:

- Building outline;
- Roads, ramps approaches, and main gate layouts;
- Open spaces, amenity spaces including landscapes, garden and parking areas;
- Coordinated services layout;
- External firefighting / hydrant system layout;
- Electrical substation, backup power generation;
- Storm / rainwater drainage layout including rainwater harvesting scheme;
- Sewer system layout including connections to local sewer system if available or locations of STP/ ETP if required including discharge management of treated sanitary and effluent water;
- Water supply and irrigation network, including connection;
- Renewable energy generation plan and location of such facility;
- Area statement including broad sizing of the utilities viz. Connected Electrical Load, Firewater reservoir and pump sizes, HVAC TR rating, etc.

### **Stage 4: Preparation of Detailed Drawings, Technical Specifications, Bill of Quantities (BOQ), Cost Estimates and Bidding Documents.**

The design concepts for all infrastructure components shall be reviewed by BEZA and after approval of final design concept, the D&S Consultant shall prepare the bidding documents considering all detailed drawings, technical specifications, BOQ, cost estimates and savings and / or benefits of the green building elements. The detailed design shall be with respect to the finalized Master Plan. The designers are expected to visit the project sites at set frequency with minimum one visit per month and in addition as and when required or demanded by the client / site manager. For all contract packages, the Consultant will prepare detailed engineering design, drawings, BOQ, bid documents, etc. and ensure that designs are carried out in accordance with appropriate international/national engineering standards. For preparing detailed engineering designs and bidding documents, technical specifications, cost estimates etc., the consultant would carry out, but not limited to, the following activities:



#### **Activity 4.1: Architectural Design Scope**

**Detail Architectural Design shall comprise but not limited to the following:**

- Detail design of the onsite and off-site infrastructure, buildings (considering the purpose, functional aspects and operation need including types of technology services and machineries to be installed);
- Develop the design keeping in mind the safe and easy lifting of the machineries, equipment to be housed;
- Three dimensional studies for coordination of various services;
- Preparation of schedule for doors, windows, plumbing etc.;
- Issue of Good for construction drawings;
- Preparation of infrastructure development plan;
- Preparation of site development plan;
- Interact with various disciplines to incorporate utility requirements;
- Drawings & documentation for approval of various statutory authorities;
- Application for approval from statutory / local authority;
- Technical support for various approvals & sanctions.

#### **Activity 4.2: Structural Design of Buildings Scope**

The D&S Consultant consistent with applicable laws, statutory permissions, construction requirements, Bangladesh National Building Code (BNBC) and other regulatory codes and preliminary Design Basis Reports, shall prepare and compile the detailed design & engineering requirements for infrastructure as under:

- Prepare alternative structural schemes interacting with architect / client;
- Detail structural analysis for building and other structures;
- Prepare detail specifications of items proposed to be used in construction;
- Issue of good for construction structural drawing; and
- Implementation of Green Building Concept.

The ADR (Architectural Design Report) and DBR (Design Basis Report) prepared by the D&S Consultant shall be submitted to the Client for approval. However, D&S Consultant shall be responsible for correctness and adequacy of the Design.

#### **Activity 4.3: Electrical Design Scope.**

Detail Engineering & Design shall comprise all temporary / permanent / internal / external / backup power distribution, including agreement computation, engineering drawing & safety installations as under:

- Preparation of single line diagram for LT distribution & lighting distribution;
- To review equipment, load list & submit distributed generation (DG), transformer, panel & cable sizing calculations;
- Preparation of high tension & low-tension substation layout;
- Electrical layout and Piping and Instrumental diagram (P&ID) for Cable tray, Illumination, power, earthing & route plan for power cable & control cable etc.;
- Preparation of control wiring diagram for interlocks & alarms wherever applicable;
- Designing internal lightning, street lighting, yard lightning etc.;
- Specifications & layout of emergency lights provision, wherever required;





- Emergency power supply & distribution including internal provision in main switch gear to switch over emergency power;
- System power flow & fault level analysis;
- Relay coordination & setting;
- Earthing & lightening protection system design;
- Scheme for Data / Voice cabling & computer systems and networking;
- Bill of quantities for items to be procured;
- Issue “good for construction drawings”; and
- Coordinating with electricity Supply Company / board for sanction and release of power load.

Based on design parameters as per relevant Bangladeshi / International standard of all the electrical equipment, the Consultant will prepare and submit the design basis report to client for review and approval. After getting the approval, the Consultant will create the distribution network area wise / system wise to meet the power requirement in terms of single line diagrams, substation layouts, earthing and lightning layouts and lighting layouts and detailed specification for all equipment included data sheets etc.

Preparation of layout and scheme for extra low voltage system includes fire detection system, public address system, telephone, data, TV system, access control system, CCTV. integrated building management system etc. However, D&S Consultant shall be responsible for correctness and adequacy of the Design for each TC.

#### **Activity 4.4. Electro-Mechanical Design and Drawing.**

The consultant shall prepare the internal and external electro-mechanical design and drawing duly approved by the client for the project as per the approved architectural design & drawing.

Electro-mechanical design and drawing shall include at least but not limited to the following:

Detail electrical design & drawing, electrical substations, Generator  
Lift Installations.

#### **Activity 4.5: HVAC System Design Scope**

Detail design & engineering of HVAC system shall comprise designing, detailing, value engineering and specifying with schedule of quantities for all works pertaining to air-conditioning, ventilation, smoke exhaust and fresh air supply system. It conforming to the standards, statutes, regulations and safety codes of BNBC etc. and design to efficiently and effectively operate for maximum energy efficiency and low noise level in all climatic conditions and as under:

- Load Estimate-Cooling & Heating;
- Designing of Entire Ventilation system;
- Determine room-by-room loads and airflows using standard manual calculation procedures;
- Layout duct system on floor plan, accounting for the direction of joists, roof hips, firewalls, and other potential obstructions;
- Determine conflict locations and types, duct lengths, and connections required to produce layout given construction constraints;
- Size duct system according to standard manual calculation procedures;
- Size HVAC equipment to sensible load using standard manual procedures;

- Equipment selection based upon design calculations and green concepts;
- Closely interact with the architect / clients and prepare preliminary schemes for approval;
- Issue "good for construction drawings".

#### **Activity 4.6: Mechanical Design Scope**

Detail engineering & design of mechanical system & utilities shall comprise but not limited the following:

- Preparation of equipment layout for process plant & utilities;
- Detail engineering design for hot, cold & compressed air piping based upon Process layout & machinery inlet & outlet parameters;
- Preparation of piping layout based upon layout of process plant & utilities;
- Design water distribution system based upon water requirement at various machines & at office /toilet places;
- Prepare equipment data for the use of civil /structure designs including dynamic factors for moving / rotating / vibratory equipment;
- Closely interact with the architect / clients and prepare preliminary schemes for approval;
- Prepare procurement specification for various bought out items & package equipment;
- Issue of good for construction drawings.

#### **Activity 4.7: Fire & Life Safety Design Scope.**

Design and Engineering shall comprise fire hydrant system, fire alarm, firewalls with fire doors, fire escape staircases, doors etc. As per Part 4 of Bangladesh National Building Code (BNBC) (2006 or latest) and suitably incorporating leading practices as per global standards and as follows:

- Prepare detailed Master Design Document List & Design Basis;
- Prepare a scheme for the Fire Fighting System.

Fire Hydrant System consists of wet riser cum down comer; hydrants, hose reel and hose box; booster pump, sprinkler pump, main pump, jockey pump and diesel engine driven pump; automatic fire hydrant panel etc. Fire Alarm System consists of smoke detectors. Heat detector etc.; manual call point; local controls panels and main control panels; public address system and hooter.

- Closely interact with the architect / clients and prepare preliminary schemes for approval;
- Issue of good for construction drawings;
- Provisional and final Fire No Objection Certificate (NOC) from relevant local fire authority.

#### **Activity 4.8: Office Interior Work Design Scope.**

Detail interior design shall comprise the following:

- Formulation of the concept;
- Prepare drawings in accordance with concept finalized with client;
- Finalization of detail specification of all items & bought out items with client;
- Preparation of drawings for interior fit outs; and
- Issue of good for construction drawings.



#### **Activity 4.9: Landscaping Design Scope.**

Detail design & engineering of landscape design shall comprise the following:

- Formulation of the concept considering local flora and fauna;
- Prepare drawings in accordance with concept finalized with client and issue of good for construction drawings;
- Study current substrata condition of landscape area;
- Design grass, trees & shrubs pattern as per climatic conditions & availability of substrata at site; and
- Design good irrigation system for landscaping work using recycled water
- Explore opportunities to design multifunctional green-spaces through application of landscaping techniques to integrate nature-based solutions for stormwater storage and management to reduce on-site flooding.

#### **Activity 4.10: Building Management System (BMS) Design.**

Detail design & engineering design for the infrastructure shall comprise the following:

- 
- HVAC control system design & detailing;
- Electrical distribution controls design & detailing;
- Water supply control design & detailing;
- Lighting control design & detailing;
- Access control design & detailing;
- Security, surveillance and safety design & detailing;
- Advanced communication system design & detailing.

#### **Activity 4.11: Preparation of Bill of Quantities (BOQ).**

The D&S Consultant/s shall prepare a detailed bill of quantities (with item wise quantity and rate) as per the above engineering brief and concept design. The BOQ prepared by the D&S Consultant must be vendor neutral.

#### **Activity 4.12: Detailed Cost Estimation for all components.**

The D&S Consultant/s will be required to prepare the cost estimate based on the detail design and seek approval of the same from BEZA/ PIU. Cost estimate should be good enough to be used for budget authorization and must have suitable contingency for the infrastructure works.

#### **Activity 4.14: Risk Identification and Mitigation**

The D&S consultant shall identify the key risks for each facility related to execution of each components. The D&S Consultant/s shall analyse each of the risks and will suggest mitigation plan for it. In particular, the consultant shall ensure that all infrastructure contracts consider the risks of disruptions due to disasters and integrates disaster response and contingency plans during the design, construction, and implementation of infrastructure related works. Assist BEZA develop a business continuity plan for key infrastructures to allow for rapid inspection of damages and expedited repair and recovery in the aftermath of natural disasters.

#### **Task 4. Environmental and Social issues related Scope of work.**

- Measure baseline water quality information of Ichakhali canal and estuary of Feni river



following the recommendations made in the project ES (Environmental and Social) documents and/or good international industry practice at several locations as determined by the client, monitor the same once in every year and provide report to the PMU.

- Measure baseline Air quality at several locations as determined by the client at BSMSN-2 and IMD zone following the project ES document and/or good international industry practice and monitor the same once in a year and submit report to the PMU.
- Measure baseline sound level at several locations as determined by the client at BSMSN-2 and IMD zone following the project ES document and/or good international industry practice and monitor the same once in a year and submit report to the PMU.
- Measure and document baseline impacts on community health and safety caused by the project activities and monitor regularly and prepare reports as specified in project's Environmental and Social Commitment Plan (ESCP)
- Conduct social screening to make sure that the activities are not causing any adverse social impacts during implementation following the ESMP
- Assist PMU in obtaining Environmental Clearance Certificate for the project/sub-projects from the Department of Environment (DoE)
- Would certify that effluent discharge from CETP is compliant with DoE and/or GIIP requirements once the construction is completed and monitor the effluent quality quarterly during the duration of this assignment.
- Design the storm water drainage network considering optimum rainwater harvesting and utilization
- Assist PMU in identifying Associated Facilities which are not being funded for the project and help ensuring compliance of WB ESF in those facilities.
- Would design sewerage treatment plant and/or any other structures required necessary for managing the sewerage and wastewater in the project area and/or as mentioned as mitigation measures in the ESMPs of the sub-projects.

#### **Task 5: Assignment B: Construction Supervision and Contract Management For Civil , Electrical and Electro-Mechanical Works.**

**Activity 5.1:** The Consultant shall provide comprehensive construction and contract management services during construction in order to ensure that the works implemented, and goods provided are in accordance with the designs, specifications and terms and conditions of the relevant contracts and standards. The Consultant would ensure construction quality and contractors performance. The consultant shall conduct full time technical supervision of all construction /erection activities by the contractors & would be responsible for all construction supervision contracts covering all project activities Core services shall include but not necessarily be limited to the following:

- Review and approve the contractors work program and progress schedules ensuring that the Contractors' have incorporated / followed the most effective and expeditors methodology for carrying out the works and submit to PMU for approval.
- Supervision and monitoring of works based on the work program submitted by the contractors. Supervise all construction works during implementation as per contract agreement through establishing procedures for systematic on-site checking and monitoring of quality and quantities of all work items, including field checks to confirm integrity of survey data, application of improved and modern methods for construction of Infrastructure related works.
- Work closely with field engineering staff in order to ensure quality and timely completion of the works.

- For the civil works, goods, and equipment supply and installation contracts, the consultant would be responsible for inspection and supervision of the construction works, installation of equipment and testing of construction material, in order to ensure that the works implemented, and goods supplied are in accordance with the designs, specifications and terms and conditions of the relevant contracts and standards.
- Provide strong on-site project supervision team of key and non-key experts, with an onsite project office, report daily progress of the works and monitor deliverables strictly against the agreed work plan submitted by the contractor;
- Verify the test results to ensure the quality of works and goods conducted by the contractors as stated in the bidding documents.
- Ensure that the tests and frequency of tests stated, and compliance of the test results are being done by the contractors as outlined in the bidding documents.
- Inspect borrow pits, and crushing plants, and order tests of materials and ensure adherence to specifications and approve the sources of materials
- Contract administration and management.
- Ensure that all infrastructure contracts consider the risks of disruptions due to disasters and integrates disaster response and contingency plans during the design, construction, and implementation of infrastructure related works. Assist BEZA develop a business continuity plan for key infrastructures to allow for rapid inspection of damages and expedited repair and recovery in the aftermath of natural disasters.
- All contract and construction documentation, administration and record keeping.
- Supervision of construction activities.
- Ensure that the contractors are maintaining site order books and recording their activities as per the work program.
- Ensure complete presence of their staff during all casting executed by the contractors.
- Make arrangement to check the quality of the materials brought to site, ensure quality of construction consistent with the specifications.
- Ensure implementation of Quality Assurance Check List for all category of works in order to establish a systematic construction procedure
- The measurement book (MB) to be signed by the Consultant
- In the event of contractual dispute which may result in legal action, adjudication or arbitration between the contractor and the employer, and on the instruction, will assist client in collating and preparing factual documentation which describes the circumstances of the dispute.
- Liaise with the Environmental and Social Specialists of the Bank/ Project Management Unit and provide data, information and all other requested assistance to them.
- Assist BEZA on resolving technical issues that may arise during implementation of infrastructural works.
- Variations and claims management. Prepare Variation Orders considering contract agreement and recommend for approval, if required. In this case, proper attention should have to be paid during design and preparation of BOQ so that the numbers of Variations could be kept minimum.
- Develop and maintain a digital platform for an effective asset management database system that is integrated with ongoing systems. The platform will archive basic information such as Site Order Books, Measurement Books (MB), Priced Bills, asset value, monitoring schedule, design documents, as well as store key monitoring data including inspection reports, and other relevant documentation of all construction works;
- Ensure the provision of warranties, guarantees and insurance management.

- Assist client concerning the Schedule of handing over the sites, and possible delays due to lack of possession with a view to assuring that the Contractors are given possession of the Site in accordance with the agreed work program.
- Jointly inspect with client the completed civil works and assist informal taking over, and review and approve or prepare “as built” drawings and plans (as the case may be), and provide reports testifying satisfactory completion of the contracts.
- Prepare 'as built drawings' after completion of works;
- Organize periodical coordination/ management meetings with contractors and BEZA;
- Presence of Team Leader in all monthly progress review meetings.
- Assurance for proper demobilization and restoration of the construction sites after completion, O&M during warranty period by the contractors
- Preparation of monthly and Quarterly progress reports
- Prepare Project Completion Report and handover the Project Director and its operation and management team so that they are familiar with the uses and operation of the facilities and to allow for effective operations of the facilities.
- Any other relevant assignment to be given by the authority.

#### **Activity 5.2 Support Management of Contracts.**

- The Consultant would assist Project Director on management of contract activities and advise necessary measures towards smooth implementation of the construction Contracts. The Consultant would also keep provision of any other specialist services as may be required from time to time.

#### **Activity 5.3: Certification of Bills.**

The D&S Consultant shall be responsible for reviewing and certifying the bills of work done submitted by the Contractor (s):

- Checking and certifying of bills submitted by the Contractor in accordance with the contract;
- Review and certify measurement as per applicable standards and the contract;
- Deduct / hold appropriate amount from the bills in case of any non-compliance observed with respect to quality and safety, till such non-compliance is addressed by the Contractor (s);
- Review and approve rate analysis in consultation with PIU for any extra / non-scheduled items executed by the Contractor (s);
- Review and comment any claims made by the Contractor (s);
- Assessment of cost over-runs / savings with every bill;
- Preparation of deviation statements (financial) at predetermined stages;
- Manage change orders;
- Review and certify final bills of the Contractor (s) to facilitate payment; and
- Maintain accurate records of all date and quantities of work carried out. In addition, maintain all payments made to the Contractor(s), and all materials and equipment supplied to the site.

#### **Activity 5.4: Completion Certification and Handing Over**





The D&S Consultant shall assess the completeness of works as per the contract and shall certify the completion, allowing the client to initiate occupying process into the premises. Following activities are expected under acceptance / handing over:

- Visit the works completed as announced by the Contractor, generate list of snags, and issue the same to the Contractor for action;
- Monitor performance during defects liability period and enforcing rectification of defects;
- Document relevant material, work test reports, measurements, commissioning reports pertaining to each section of the work;
- Check for signage, markers for cables, trench covers, proper functioning of various systems;
- Review as built drawings submitted by the Contractor (s);
- Review the status of relevant statutory approvals;
- Certify the virtual completion and the final completion of works as applicable;
- Testing, commissioning and handing over the facility;
- Detailed inspection at completion of work and during defect liability period, Co-ordination with the contractors to rectify the defects during the defects liability period which shall be one year after the handing over of the site; and
- Recommending release / forfeiture of securities / guarantees.

## **Task 6. Environmental and Social Risk Management.**

**Activity 6.1.** The Project will follow the WB's Environmental and Social Framework (ESF), which consists of ten Environment and Social Standards (ESS). From the likely activities of the proposed investment, the E&S risk is classified as high. The relevant E&S standards are: ESS1 - Assessment and Management of Environmental and Social Risks and Impacts, ESS2 - Labor and Working Conditions, ESS3 - Resource Efficiency and Pollution Prevention and Management, ESS4 - Community Health and Safety, ESS5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement, ESS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources, and ESS10 - Stakeholder Engagement and Information Disclosure. There are also E&S risks of associated facilities that are not funded by the WB. The ESF mandates that the requirements of the ESF are equally applicable to associated facilities of a project. The identification of the current and foreseeable associated facilities and the assessment of their E&S risks are continuous tasks. The Environmental and Social Impact Assessment (ESIA) covers this aspect and includes Associated Facility Screening Formats and the necessary steps to be followed once they are identified so that the E&S risks can be managed properly.

**Activity 6.2 . For Environment, Social, Health and Safety (ESHS) the scope of services of the consultant for civil works supervision should be based on the following :**

The Works' Requirements of the contract document include the environmental and social (ES) requirements (including requirements relating to Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) which are to be satisfied by the Contractor in executing the Works. The Consultant shall ensure that the Contractor comply with all the requirements



mentioned in the ES specification and various ES issue related clauses mentioned in the contract document. They will review various ES documents submitted by the contractors before submitting those to PMU for their approval. ESHS performance is in accordance with good international practice and delivers the Contractor's ESHS obligations.

**Such services would include but are not limited to:**

- Review the Contractor's Environment and Social Management Plan (C-ESMP) prepared based on the Strategies and Management Plans as are necessary to manage the ESHS risks and impacts of ongoing works including all updates and revisions;
- Ensure compliance of codes of conduct that should be provided to and signed by all workers, detailing measures to address environmental, social, health and safety risks, and the risks of sexual exploitation and abuse, sexual harassment and violence against children, all as applicable to such civil works commissioned or carried out pursuant to said contracts.
- Would monitor various recommendations of the Labor Management Procedure prepared for the project (attached in Annex-\*\*) and ensure its successful implementation.
- Would monitor that Occupational Health and Safety (OHS) measures are being complied of.
- Play an active role to ensure that the Contractors, Labor *Sarders*, and laborers are made fully aware of the GRM and its objectives and functions, as well as the hearing and redress process. The Consultant will also ensure that Grievance Redress Committees (GRCs) are established at the work sites.
- Review and consider the ESHS risks and impacts of any design change proposals and advise if there are implications for compliance with ESIA, ESMP, consent/permits and other relevant project requirements;
- Supervise regularly Contractor's compliance with ESHS requirements in accordance with the approved safeguard documents including its GBV/SEA obligations, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month
- Undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other ESHS related documentation, as necessary, to confirm the Contractor's compliance with ESHS requirements;
- Agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ESHS obligations;
- Ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with ESHS obligations;
- Review and critique, in a timely manner, the Contractor's ESHS documentation (including regular reports and incident reports) regarding the accuracy and efficacy of the documentation;
- Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ESHS issues;
- Establish and maintain a grievance redress mechanism including types of grievances to be recorded and how to protect confidentiality e.g. of those reporting allegations of GBV/SEA.
- Ensure any GBV/SEA instances and complaints that come to the attention of the consultant are registered in the grievance redress mechanism.

**Task 7: MIS Reporting.**

- Develop an integrated construction schedule on MS Project (or similar widely accepted tool) with two-week micro plans for activities covering all trades and monitor compliance. The plan must clearly articulate the critical path (CPM);
- The D&S Consultant shall bring to prompt attention any activity which is slipping from critical path (CPM or baseline);
- The D&S Consultant shall conduct fortnightly reviews and recasting of schedules where necessary to make up for lost time;
- The D&S Consultant shall submit a monthly report on the progress made and hold apart from regular meetings with the Contractors where it shall brief the progress of the construction works; and
- The D&S Consultant shall use on-line secure report mechanism for each construction works to report progress, status update so that all stakeholders including the Government, the World Bank and other stakeholders can view it.

### **Task 8. Services to be provided by the consultant for component 2.2.**

The infrastructure related works executed under Public Private Partnership (PPP) are stated below:

1. **Common Effluent Treatment Plant.**
2. **Desalination plant:** The technical assessment of potential desalination technologies points to sea water reverse osmosis with energy recovery as the most competitive solution. The desalination plant, will consider climate vulnerability and extreme weather conditions in the designing of the plant which will improve the quality, resilience, and sustainability of water services.
3. **Rooftop, ground-mounted and floating solar:** This activity will support renewable energy systems using rooftop and floating solar power schemes to increase access to clean and sustainable electricity.
4. **Steam network:** Construction of high/mid-pressure steam pipelines connecting tenant firms is most viable between the planned steel plant (the sender) and the textile companies (the receivers) in BSMSN-2.
5. **Biogas plant, waste sorting and material recovery facility:** A waste sorting facility with 10 tons/hour capacity will be constructed to process waste and recover material from industrial and municipal waste, including metals, glass, paper, textiles, and plastics, as well as domestic food waste, roads and building construction waste and electronic waste.
6. **Landfill:** The estimated amount of solid waste generated from the BSMSN-2 is 464 tons/day at full capacity, including industrial (hazardous and non-hazardous) and organic solid waste. Municipal solid waste and domestic sewage can be collected from point sources throughout the BSMSN. Projected design waste volumes are 40,000 m<sup>3</sup> per year at full capacity. The total area required to meet the waste generated from the BSMSN-2 for a 20-year design horizon is roughly 220 acres to be developed in a modular way.<sup>1</sup>

#### **Activity 8.1 The consultant will provide their services but not limited to the following:**

- Conduct top supervision.
- Conduct supervision of civil works.



- Coordinate and collaborate and work closely with the PPP consultants in all stages of activities;
- Inform the PPP consultants regarding any anomalies and defects in execution of PPP contract packages.
- Resolve interface problem if arises during execution of basic infrastructure component and related works.
- Assist BEZA in resolving technical and implementation issues;

### **Task 9. Statutory' Approvals and Certificates.**

The D&S Consultant shall identify and obtain all pre-construction stage statutory approvals. The D&S Consultant shall also identify all the approvals required during and after completion of the construction that shall be included in the scope of the Contractor (s). The D&S Consultant shall prepare time schedule for submission of all statutory approvals and certificates applicable as per government rules /regulation. Any expenditure related to these approvals like statutory fee etc. shall be borne by Project. The D&S Consultant shall prepare time schedule for submission of all statutory approvals and certificates applicable as per government rules / regulation.

### **Task 10. Reporting Requirements**

**Activity 10.1. ESHS reporting Requirement:** The Consultant shall follow and provide the following Environment, Social, Health and Safety (ESHS) information and report.:

- (a) **Monthly Monitoring Report:** The consultant shall regularly supervise the compliance of various safeguard requirements as per various ES documents such as ESMPs, LMPs etc. and submit monthly report to BEZA.
- (b) **Quarterly Monitoring Report:** The consultant would also submit a quarterly progress report based on the monthly progress reports in a format agreed upon by the client.
- (c) **Monitoring Report on Environmental and Social Parameters:** The consultant would provide water quality, air quality, sound level and other environmental and social parameters as per the frequency mentioned in activity 4.8 of stage of Task-3
- (d) The Consultant shall provide immediate notification to the Client should any incident in the following categories occur while carrying out the Services. Full details of such incidents shall be provided to the Client within the timeframe agreed with the Client.
  - (i) confirmed or likely violation of any provision of ESMP, LMP, ESMF and other safeguard documents, DoE Clearance conditions, law or international agreement;
  - (ii) any fatality or serious injury;
  - (iii) significant adverse effects or damage to private property (e.g. vehicle accident); or
  - (iv) any allegation of gender-based violence (GBV), sexual exploitation or abuse (SEA), sexual harassment or sexual misbehavior, rape, sexual assault, child abuse or defilement, or other violations involving children,
- (e) Ensure that contractor immediate notifications on ESHS aspects are shared with the Client immediately;
- (f) Immediately inform and share with the Client any immediate notification related to ESHS incidents provided to the Consultant by the Contractor, and as required of the Contractor as part of the Progress Reporting;

- (g) Share with the Client in a timely manner the Contractor's ESHS progress reporting metrics, as required of the Contractor as part of the conditions of contract.

**Activity 10.2. Construction and Supervision Reporting:** The Consultant will report implementation progress of the Project to the Project Director through quarterly and monthly progress reports. The quarterly and monthly progress reports should include project implementation status, major issues, and proposed corrective actions. The Consultant will prepare the following reports in English and submit in the number of copies indicated below to the Project Director. All reports submitted must have signatures of the author, checker and approver, with seals of the Consultant firm. For each report submitted, an electronic copy of the same should be provided. Electronic copies will be in the format used in their preparation with all links, formulas, and fields active. For all reports an executive summary will be included.

Type of Report	Total Quantity	Submission Time
<b>Inception Report and Work Plan:</b> The Inception Report (IR) will update the methodology and the program of work including deployment of personnel that will be included in the Consultant's proposal and used as a basis for agreed pricing, noting the changes and detailing any difficulties encountered, together with a proposal on how they may be overcome. The PIU will review and comment on IR and finally will be approved / acceptance by the Project Director. The Consultant's established Work-Plan may be revised from time to time, but acceptance by the Project Director must be requested each time.	7 copies	30 days after the effectiveness of contract
<b>Monthly Progress Reports:</b> The report will briefly describe activities for the month and comparison of progress of work with the projected work plan. The report will cover both the design and the construction supervision phase's activities. Accordingly, in both the cases, different stage wise activities progress report to be reported in applicable cases. The construction phase reports at least shall include (i) the performance of the contractors; (ii) highlight issues observed during construction; (iii) present solutions for observed issues.	7 copies	5th day of each calendar month
<b>Quarterly Progress Report:</b> which will summarize all project activities including progress of works, contracts variations and change orders, achievements and utilization of resources over the previous three months, implementation of the environment management framework, highlight key issues identified, and present the Consultants work plan for the coming three months.	15 copies	At the end of each quarter month from the date of commencement.
<b>Implementation Completion Report (ICR)</b> at the end of the assignment of contracts when the assignment reaches a substantial completion. This report must be submitted immediately after taking over of contracts and shall summarize the concepts and methods of design, construction, construction supervision performed and recommendations with lessons learnt for future projects of similar nature to be undertaken by the employer.	15 copies	8 weeks before the date of termination



**Task 11. Facilities and Equipment to be Provided by the Client.**

Project will provide the Consultant all readily available material, reports and data relating to the consulting services, including resettlement and environmental documents.

**Task 12. Facilities to be Provided by the Consultant.**

The Consultant should have at least the following facilities (but not limited to) during the construction supervision/ monitoring period:

- Suitable office space with consumables and communication both in field and main office;
- Suitable equipment for all supervision /monitoring works;
- Vehicles, office equipment including telephones, computers and printers, etc.
- Required support personnel.

No separate / additional payment will be provided from Project for the Consultant's facilities.

**Task 13. Minimum Required Experiences of the Consultant and Indicative Key Team Composition.**

**Activity. 13.1.** The consultant having experience and have strong capabilities and proven record in designing and carrying out of establishing of similar type of assignment in national / international level are necessary. The Consultant must also have demonstrated expertise in the supervision of similar type's structures. The firm shall provide a team consisting of experts with adequate background and experience in designing (preferably having international experience) and construction supervision. The expected team would include a set of key experts comprising of a Team Leader, Architects, Civil Structural Design Engineers for buildings, roads, bridges, culverts, etc., Construction Supervision Engineers, Electrical Expert, Utility Service Expert and Environmental and Social Safeguard Expert. The consultant is free to propose a staffing plan and skill mix necessary to meet the objectives and scope of the services. If not all the required skills are available within the consulting firms, they are encouraged to make joint ventures with other equivalent firms. The curriculum vitae of the key experts should contain information of the assignments they have successfully completed within last 5 years, with complete names and addresses of the clients and the name and contact information of the immediate supervisors. The procuring entity may contact any of those clients of the first ranked firm, for verification of the information provided by the firm, prior to signing the contract. Following is the indicative key experts' team structure required from the D&S Consultant in order to deliver the assignment. The Consultant can propose some of their key experts as intermittent positions and some of may be in full time positions. This table is for guidance only participants are expected to present their own version of key team structure and composition:

**Activity 13.2. Staffing input (Man-Months).****Key Experts For Design and Construction Supervision Stages (will be considered during evaluation)****Key Experts Indicative Time Input Expressed in Person-Month.**

Sl No.	Position	No. of Position	Person-Month	Total Person Month
	<b>Key Expert</b>			
1	Team Leader	1	50	50
2	Deputy Team Leader	1	50	50

3	Senior Architect	1	25	25
4	Design Engineer-1: Building	1	25	25
5	Design Engineer-2: Road	1	25	25
6	Design Engineer-3: bridge, culvert,;	1	25	25
7	Design Engineer-4: Drainage design Expert	1	25	25
8	Construction Supervision Engineer-: Field Residence.	3	50	150
9	Chemical Engineer Field Residence	1	30	30
10	Mechanical/Electrical Engineer : Field Residence	2	30	60
11	Environment and Safety Engineer: Field Residence	1	30	30
12	Environmental Specialist	1	20	20
13	Social Development Specialist	1	20	20

**Total :****535**

### Activity 13.3. Non-Key Experts Indicative Time Input Expressed in Person-Months for both Design and Construction Supervision stages.

**Proposed Non-key Experts:** In addition to above listed positions / professionals; the consultant should make arrangements for Non-Key Experts and support professionals with adequate experience in relevant fields. It is envisaged that the Non-Key Experts inputs would be required intermittently for both Design and Construction Supervision stages .. The inputs of these non-key staff should be calculated in such a way that, all the responsibilities envisaged in the scope of work are completely met: Indicative lists of the Non-key experts with their time inputs (man-months) who may be required for are given below:

SI No.	Position	No. of Position	Person - Month	Total Person Month
	<b>Non-Key Expert</b>			
1	Design Engineer-5: embankment	1	25	25
2	Design Engineer-6: Water Supply design Expert	1	25	25
3	Electrical Design Expert	1	25	25
4	Mechanical design engineer	1	25	25
5	Chemical Engineer (design)	1	25	25
6	Social Development Specialist	1	25	25
7	Senior Planner	1	25	25
8	Investment Analyst	1	25	25
9	Office Engineer	4	50	200
10	Contract Management Support	2	40	80
11	Procurement Support	2	50	100
12	Jr. Design Engineer (Building/roads/bridges, culverts/embankment/water supply/drainage)	6	30	180
13	Civil -Site Engineers/Supervisors	6	40	240
14	Electrical-Site Engineers/Supervisors	1	40	40
15	Mechanical-Site Engineers/Supervisors	1	40	40
16	Chemical-Site Engineers/Supervisors	1	30	30
17	Jr. Water Supply and Drainage Expert	1	50	50





Sl No.	Position	No. of Position	Person - Month	Total Person Month
18	Jr. Environment and Safety engineer	1	40	40
19	Jr. Mechanical/Electrical Engineer-Design	1	40	40
20	Material cum Quality Control Engineer; Field Residence.	4	50	200
21	Architect	1	40	40
22	Accounts Support	2	50	100
23	Office Manager	1	50	50
24	IT Support	2	50	100
25	Jr. Planner	2	40	80
26	Telecommunication Consultant	1	50	50

#### Activity 13.4. FIELD/SUPPORT STAFF:

The Consultant may provide the necessary field staff – including junior engineers, estimators, draftsmen, surveyors, field supervisors and office support staff – needed in order to carry out their tasks and fulfill their responsibilities effectively.

Sl No.	Position	No. of Position	Person-Month	Total Person Month
	<b>FIELD/SUPPORT STAFF:</b>			
1	Surveyor	3	50	150
2	Estimator	3	50	150
3	CAD Operator	7	50	350
4	Laboratory Technician	4	50	200
5	Jr. Office Manager	1	50	50
6	Computer Operator	4	50	200
7	Office Assistant	4	50	200

#### Task 14. Details Qualifications of Key and Non-Key Experts.

##### Activity 14.1 Key Experts:

Sl. No	Expert position	Educational qualification & experiences	Type of Engagement
1	Team Leader	Minimum Bachelor's degree in Civil Engineering from reputed institute. Any relevant / project management professional qualification will be an added advantage. Having at least total 20 years of relevant experience. Of which at least 10 years' experience in project management, coordination on	(Full time)



Sl. No	Expert position	Educational qualification & experiences	Type of Engagement
		design & drawings, contract management, quality control, monitoring, reporting & top supervision of similar type of projects. Should have experience as Team Leader at least 3 similar type of projects. Experience in Donor funded projects as Team Leader will be preferable.	
2	Deputy Team Leader	Minimum Bachelor's degree in Civil Engineering from reputed institute. Minimum 15 (Fifteen) years' experience in Civil Engineering Profession. Should have experience of monitoring Civil Works. Previous experience of implementing similar project especially foreign or World Bank funded, is preferred. Prior experience in procurement and contract management are required.	(Full time)
3	Senior Architect	Minimum Bachelor's degree in Architecture with at least 15 years of relevant experience. Preferably, have international experiences in architectural designing & planning similar nature of projects. Having also experienced in energy efficient and disaster resilient structural designs that reflect green and resilient building and land development principles following the most up to date standards etc. Experience in working for World Bank financed projects would be preferable.	(Incremental , and/or Intermittent)
4	Design Engineer-1: building	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of building. Minimum Bachelor's degree in Architecture with at least 15 years of relevant experience. Preferably, have international experiences in architectural designing & planning similar nature of projects. Having also experienced in energy efficient and disaster resilient structural designs that reflect green and resilient building and land development principles following the most up to date standards etc. Experience in working for World Bank financed projects would be preferable.	(Incremental , and/or Intermittent)
5	Design Engineer-2: Road	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of roads, bridges, culverts and drainage structures. Minimum Bachelor's degree in Civil Engineering with 15 years of relevant experience in the design of roads, bridges, culverts and drainage structures, as well as asset data management. Experience in working for World Bank financed projects would be preferable. Knowledge and experience on green and resilient infrastructure is a plus.	(Incremental , and/or Intermittent)
6	Design Engineer-3:	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of bridges, culverts. Minimum Bachelor's degree in Civil	



Sl. No	Expert position	Educational qualification & experiences	Type of Engagement
	bridge, culvert,;	Engineering with 15 years of relevant experience in the design of roads, bridges, culverts and drainage structures, as well as asset data management. Experience in working for World Bank financed projects would be preferable. Knowledge and experience on green and resilient infrastructure is a plus.	(Incremental , and/or Intermittent)
7	Design Engineer-4: Drainage design Expert	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of drainage structures. Knowledge and experience on green and resilient infrastructure is a plus.	(Incremental , and/or Intermittent)
8	Construction Supervision Engineer-: Field Residence.	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the supervision of Civil Works etc.	Full Time
9	Chemical Engineer Field Residence	Minimum Bachelor's degree in Chemical Engineering with 10 years of relevant experience in the supervision of Chemical Engineering Works.	(Incremental , and/or Intermittent)
10	Mechanical/ Electrical Field Residence	Minimum Bachelor's degree in Electrical & Electronics Engineering / Mechanical Engineering with 10 years of relevant experience in the supervision of Electro-Mechanical Works.	(Incremental , and/or Intermittent)
11	Environment and Safety Engineer: Field Residence	Minimum Bachelor's degree in environmental with 10 years of relevant experience. At least 5 years professional experience in implementation of OHS, environment plan including preparation of EIA, EMP reports etc.	(Incremental , and/or Intermittent)
12	Environmental Specialist	Minimum Master degree in environmental engineering/science with 10 years of relevant experience. At least 5 years professional experience in environmental study & implementation of environmental management plan including preparation of EIA, EMP reports etc. The Expert/s should also be well known about national / the World Bank environmental and social safeguard policies.	(Incremental , and/or Intermittent)
13	Social Development Specialist	Minimum Master degree in subjects under social sciences with 10 years of relevant experience. At least 5 years professional experience in social study & implementation of social management plan including preparation of SIA, SMP, RAP reports etc. The Expert/s should also be well known about national / the World Bank environmental and social safeguard policies.	(Incremental , and/or Intermittent)

#### 14.2 Non-Key Experts:

Sl. No	Non-Key Expert position	Educational qualification & experiences	Type of Engagement
1	Design Engineer-5: embankment	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of roads, embankment. Having experience in integrating climate and disaster risks into embankment design (i.e. consideration of climate uncertainties within embankment design) is a plus.	(Incremental, and/or Intermittent)
2	Design Engineer-6: Water Supply design Expert	Minimum Bachelor's degree in Civil Engineering with 10 years of relevant experience in the design of Water Supply structures. Understanding of disaster risk management and resilient water supply and drainage, particularly to floods, is a plus.	(Incremental, and/or Intermittent)
3	Electrical Design Expert	Minimum Bachelor's degree in Electrical & Electronics Engineering with 10 years of relevant experience in the design of this field. At least 5 years' in the design, selection and installation of electro-mechanical devices in particular TCs or similar types of works. Experience in HVAC, different service including well known to get approval for different utility connections for getting services. Experience in World Bank financed projects would be preferable.	(Incremental, and/or Intermittent)
4	Mechanical design engineer	Minimum Bachelor's degree in Mechanical Engineering with 10 years of relevant experience. At least 5 years' in the design, selection and installation of electro-mechanical devices in particular TCs or similar types of works. Experience in HVAC, different service including well known to get approval for different utility connections for getting services.	(Incremental, and/or Intermittent)
5	Chemical design Engineer	Minimum Bachelor's degree in Chemical Engineering with 10 years of relevant experience in this field.	(Incremental, and/or Intermittent)
6	Social Specialist	Minimum Bachelor's degree in social science with five years of relevant experience. At least three years professional experience in / social study & implementation of social plans including preparation of Labour management, SIA, RAP reports etc. The Expert should be well conversant with laws relating to land acquisition, state procedures in implementation plans & frame- work. The Expert/s should also be well known about	(Incremental, and/or Intermittent)

Sl. No	Non-Key Expert position	Educational qualification & experiences	Type of Engagement
		national / the World Bank environmental and social safeguard policies.	
8	Senior Planner	Minimum Bachelor's degree in URP/Civil Engineering with at least 15 years of relevant experience. Preferably, have experiences in Economic Zones. and disaster risk management, resilient urban and land management. Knowledge and experience on green and resilient urban and landscape design is a plus.	(Incremental, and/or Intermittent)
9	Investment Analyst	Minimum Master's degree in Economics/Accounting/ MBA/Marketing/FCA/Finance/Equivalent. Candidate must have 10 years experience in financial analyst/investment analyst.	(Incremental, and/or Intermittent)
10	Office Engineer	At least Bachelor's degree in Civil Engineering from reputed institute with 10 years of total experience whereas 5 years experience in Donor Funded project.	Full Time
11	Contract Management Support	At least Bachelor's degree in Civil Engineering from reputed institute with 10 years of total experience whereas 5 years experience in Contract Management of Donor Funded project. Previous experience of implementing similar project especially foreign or World Bank funded, is preferred.	(Incremental, and/or Intermittent)
12	Procurement Support	At least Bachelor's degree in Civil Engineering from reputed institute with 10 years of total experience whereas 5 year experience in Procurement of Donor Funded project. Previous experience of implementing similar project especially foreign or World Bank funded, is preferred.	Full Time
13	Jr. Design Engineer (Building/roads/ bridges, culverts/embankment/water supply/drainage)	Minimum Bachelor's degree in Civil Engineering/Water Resource Engineering with 5 years of relevant experience in the design of (Building/roads/bridges, culverts/embankment/water supply/drainage)	(Incremental, and/or Intermittent)
14	Civil- Site Engineers/Super visors	Minimum Diploma in Civil Engineering with 5 years of relevant experience of supervising Civil Works.	(Incremental, and/or Intermittent)
15	Electrical- Site Engineers/Super visors	Minimum Diploma in Electrical Engineering with 5 years of relevant experience of supervising Electro-Mechanical Works.	(Incremental, and/or Intermittent)
16	Mechanical- Site Engineers/Super visors	Minimum Diploma in Mechanical Engineering with 5 years of relevant experience of supervising Electro-Mechanical Works.	(Incremental, and/or Intermittent)

Sl. No	Non-Key Expert position	Educational qualification & experiences	Type of Engagement
17	Chemical- Site Engineers/Super visors	Minimum Diploma in Chemical/ Civil Engineering with 5 years of relevant experience of supervising Chemical Works.	(Incremental, and/or Intermittent)
18	Jr. Water Supply and Drainage Work Engineer-Supervision	Minimum Diploma in Civil Engineering with 5 years of relevant experience of supervising Water Supply and Drainage Works.	Full Time
19	Jr. Environment and Safety engineer - Supervision	Minimum Diploma in Civil Engineering/Environmental Engineering with 5 years of relevant experience of Environmental, Health and Safety Works.	Full time
20	Jr. Mechanical/Elec trical Engineer-Design	Minimum Bachelor's degree in Electrical/Mechanical Engineering with 5 years of relevant experience of design of Electro-Mechanical Works.	(Incremental, and/or Intermittent)
21	Material cum Quality Control Engineer; Field Residence.	At least Bachelor's degree in Civil Engineering from reputed institute with 10 years of total experience whereas 5 year experience in Material cum Quality Control Engineer.	Full Time
22	Architect	Minimum Bachelor's degree in Architecture from reputed institute with 8 years of total experience whereas 5 years in specific experience. Prepare and Review of all architectural drawings and 3d views along with working drawings, relevant information documents regarding design, specifications, materials and equipment. Draw up costs, schedules and other elements associated with construction (interior or exterior) projects. Manage and Supervise the construction site according to the drawing documents. Coordinator of design related problem-solving. Capable to operate Auto Cad, Adobe Photoshop, Adobe Illustrator CS, Sketch up 17 for 3d modelling.	(Incremental, and/or Intermittent)
23	Accounts Support	Minimum Master's degree in Accounting from reputed institute with 7 years of total experience whereas 5 years experience in Accounting related works of Donor Funded project.	Full Time
24	Office Manager	Minimum Bachelor degree in any discipline from reputed institute with 5 years of total experience in official works.	Full Time
25	IT Support	Minimum Bachelor degree in Computer Science and Engineering/ Engineering degree from any discipline with Masters in IT. Masters in Information Technology having	Full Time



Sl. No	Non-Key Expert position	Educational qualification & experiences	Type of Engagement
		Bachelor degree from any discipline from reputed institute with 10 years of total experience whereas 5 years experience in this field.	
26	Jr. Planner	At least Bachelor's degree in Urban and Regional Planning from reputed institute with 5 years of total experience whereas 3 years experience in related works.	(Incremental, and/or Intermittent)
27	Telecommunication Consultant	At least Bachelor's degree in EEE/ETE/Equivalent from reputed institute with 7 years of total experience whereas 5 years experience in related works.	Full Time

**Task. 15. Code of Conduct. For supervision of civil works contracts:** All experts and support staff of the Consultant:

- (i) Comply with applicable laws, rules, and regulations.
- (ii) Comply with applicable health and safety requirements to protect the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (including wearing prescribed personal protective equipment, preventing avoidable accidents and a duty to report conditions or practices that pose a safety hazard or threaten the environment)
- (iii) Must not use of illegal substances
- (iv) Must follow Non-Discrimination in dealing with the local community (including vulnerable and disadvantaged groups), the Consultant's Experts, the Client's personnel, and the Contractor's personnel, including sub-contractors and day workers (for example, on the basis of family status, ethnicity, race, gender, religion, language, marital status, age, disability (physical and mental), sexual orientation, gender identity, political conviction or social, civic, or health status)
- (v) Must show respect while Interactions with the local community(ies), members of the local community (ies), and any affected person(s) (for example to convey an attitude of respect, including to their culture and traditions)
- (vi) Must prohibit Sexual harassment (for example to prohibit use of language or behaviour, towards women and/or children, that is inappropriate, harassing, abusive, sexually provocative, demeaning or culturally inappropriate)
- (vii) Must avoid Violence, including sexual and/or gender-based violence (for example acts that inflict physical, mental or sexual harm or suffering, threats of such acts, coercion, and deprivation of liberty)
- (viii) Must prohibit Exploitation including sexual exploitation and abuse (for example the prohibition of the exchange of money, employment, goods, or services for sex, including sexual favors or other forms of humiliating, degrading behaviour, exploitative behaviour or abuse of power)
- (ix) Must Protect of children (including prohibitions against sexual activity or abuse, or otherwise unacceptable behavior towards children, limiting interactions with children, and ensuring their safety in project areas)
- (x) Should ensure Sanitation requirements (for example, to ensure workers use specified sanitary facilities provided by their employer and not open areas)



- (xi) Must avoid of conflicts of interest (such that benefits, contracts, or employment, or any sort of preferential treatment or favors, are not provided to any person with whom there is a financial, family, or personal connection)
- (xii) Protection and proper use of property (for example, to prohibit theft, carelessness or waste)
- (xiii) Duty to report violations of this Code
- (xiv) Non-retaliation against personnel who report violations of the Code, if that report is made in good faith

Each Expert shall sign indicating that they have:

- (i) received a copy of the code;
- (ii) had the code explained to them;
- (iii) acknowledged that adherence to this Code of Conduct is a condition of employment; and
- (iv) understood that violations of the Code can result in serious consequences, up to and including dismissal, or referral to legal authorities.

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