Government of the People's Republic of Bangladesh
Bangladesh Economic Zones Authority
Prime Minister's Office
Plot # E-6/B, W. Agargoan, Dhaka-1207.

Terms of Reference (TOR)
for
Bidding Documents Preparation under Supporting Infrastructure Project for Chinese Economic & Industrial Zone in Chattogram of Bangladesh.

1. Background

In June 2014, during the official visit of Bangladesh Prime Minister Sheikh Hasina to China, the Ministry of Commerce of China and the Bangladesh Economic Zones Authority (BEZA) signed a Memorandum of Understanding (MoU) for establishing Chinese Economic Industrial Zones in Bangladesh. In 2016, under the witness of Chinese President Xi Jinping and Bangladesh Prime Minister Sheikh Hasina, both parties signed a cooperation and investment agreement. Chinese companies would collaborate with BEZA to jointly develop the economic special zones. Chinese companies would be responsible for investment and development within the economic zones, while BEZA would handle the necessary municipal and supporting infrastructure for the smooth operation of the economic zones, including water supply, drainage, electricity, natural gas, jetty, roads, and other essential facilities.
As the development of the China Economic Industrial Zone in Chattogram, Bangladesh (referred to as the "CEIZ" hereafter) progresses, the need for essential infrastructure surrounding the CEIZ becomes necessary and urgent due to its current inadequacy. These essential infrastructure facilities include water supply, sewage & effluent treatment, electricity, gas, jetty, and road works. The construction of these infrastructure facilities will ensure sufficient water supply, electricity, gas, sewage treatment, and transportation for future businesses and residents within CEIZ.

Therefore, BEZA has decided to develop an economic zone named Anowara-2 Economic Zone (Hereinafter referred to as Chinese Economic and Industrial Zone, or CEIZ in short) in Anowara Upazila, Chattogram. The zone will cover a total area of around 314.39 hectares
including both private and government-owned land. Adequate infrastructure will be provided to support the operations of the zone.
The project is jointly financed by the Government of China and Bangladesh. The Government of China has allocated an amount of US$ 221 million Under a Chinese Government Concessional Loan & Preferential Export Buyer's Credit.

A bidder has already been selected titled as "China Road and Bridge Corporation (CRBC)", a state-owned company of China, according to the financing agreement. A consulting firm will be hired for the preparation of bidding documents and assist in the negotiation with the selected bidder. A consulting firm will be appointed using direct procurement (DPM)/ Fixed Budget Selection (FBS) method of Public Procurement Rules, 2008.

2. Project Description

2.1 Objective of the assignment

Development of the supporting infrastructure for Chinese Economic and Industrial Zone, it includes water supply, sewage & effluent treatment, power supply, gas, jetty, link roads, and other ancillary works such as solid waste collection station, gates and boundary wall of CEIZ, etc., which can guarantee the operation of the CEIZ, promote the development of the CEIZ and its surrounding area, and is expected to deliver considerable social and environmental benefits.
Therefore in a nutshell the objectives of this assignment are as follows:

- Identify and finalize Employers Requirements;
- Preparation of Rough cost estimates and BoQ; and
- Preparation of Bidding Documents (EPC) for the Project;

2.2 Components

i. Water Supply

Water-supply engineering includes the following works: water intake pump station, raw water supply pipeline, water treatment plant, and treated water supply pipeline.
Water intake pump station: Water intake pump station is designed with a capacity of $3.0\times104m^3/d$; Karnaphuli River being the water source, preliminary site selection for the station at the east bank of Karnaphuli River is recommended, including raw water reservoir, water pump house, etc.
Raw water supply pipeline: A single pipe steel reinforced polyethylene plastic pipes (SRPE) with DN700 diameter is to be used to supply water from the water intake pump station to the water treatment plant. The pipeline, being laid along the existing road, is estimated to run 31km.
Water treatment plant (WTP): In line with the planning land requirements, water treatment plant is to be located in the north of CEIZ. It is designed with a capacity of 30MLD based on the water demand forecast of CEIZ.
Currently the international mainstream water treatment process is coagulation-sedimentation-filtration-disinfection, which will be adopted in this project. This process has been proven mature and reliable, and it ensures that treated water quality meets the local and WHO standards.

ii. Sewage & Effluent Treatment

The location of Central Effluent Treatment Plant (CETP) is selected in the northeast of CEIZ. It is a low-lying area that can facilitate wastewater pipe network to collect wastewater and discharge it to the CETP. Besides, the land use property of this area has been clarified.
Considering the water demand prediction and drainage properties of the zone, the capacity of the CETP is designed to be 25MLD.
A variety of CETP processes have been proposed and elaborated in the report. After analyzing the characteristics of wastewater quality, water demand, water discharge requirements and local operation and management level in the locality, second-level biochemical treatment is recommended as the CETP process for this project. The recommended biochemical process is the international mainstream CETP processes. It has been proven mature and reliable with characteristics of strong shock resistance, good treatment effect, stable and reliable operation,

simple operation management, low investment, operation cost and power consumption, etc., which can ensure that the treated water meets discharge standards.

iii. Power Supply

Taking CEIZ power load forecast into consideration, two nos substations with a capacity of 2 x 31.5MVA each are proposed to be built in order to meet CEIZ power demand.
The two substations are to be located at the east and south of CEIZ, which is convenient for incoming and outgoing lines and the nature of land use has been determined.
Considering the regional environmental characteristics, economic benefits, operation and maintenance costs and other factors of the project, the substations will be built indoor with two oil-immersed transformers as the main transformer; Transmission line will adopt overhead anti-corrosion ACSR by 33kV double-circuit steel pipe pole. The total length of the power transmission lines is estimated to be 20km with one connecting the existing Shahmirpur 132/33kV substation to 1# 33/11kV substation and another connecting the future Anowara 132/33kV substation to 2# 33/11kV substation.
The proposed scheme is mature and reliable, technically and economically reasonable, safe and applicable, which can ensure the safety, reliability and stability of power supply in the zone.

iv. Gas Supply

It is proposed a new pressure regulating terminal and LNG gasification station in CEIZ to be built in the north of CEIZ with a design capacity of 12×104Nm3/d (equivalent to 3 mmscfd) and a total LNG storage capacity of 5.96×104 Nm^3 (gas), equivalent to about 100m^3 (liquid).
The future gas users in CEIZ are mainly residential, commercial, public and industrial users. Since different users have different demands on gas supply pressure, the gas transmission and distribution system in the zone is configured at two levels: high pressure and medium pressure. Natural gas will be transported from Anowara LNG Terminal to CEIZ through the newly built high-pressure inlet pipeline. After being measured and regulated, it will be divided into two stages: high pressure (design pressure 0.8MPa) and medium pressure (design pressure 0.4MPa), which will supply large and medium-sized industrial and residential users, commercial and small industrial users in CEIZ respectively. In case of interruption of pipeline natural gas supply, the LNG gasification station in CEIZ will act as the emergency gas supply for residents, businesses, public buildings and some non-interruptible industrial users in the zone. For the sake of saving land use, intensive land use and saving investment, the gas regulator station and LNG gasification station will adopt the form of joint construction.

v. Jetty

The proposed jetty is designed to have one 20,000tons multipurpose berth with a total length of 212m to accommodate 10,000DWT barge, 20,000DWT general cargo ship and 20,000DWT container ship. Top elevation of the jetty is +7.5m CD and the elevation of berthing pocket is taken as -11.0m CD. The marine structure of the jetty and the trestle will adopt pile-support structure, and the upper part will adopt beam-and-slab structure. A revetment is designed to protect the slope, which has hollow square as the armor layer. The jetty design also takes power supply, lighting system, water supply system, drainage system, communication system, control system, and aids to navigation system into consideration. The annual throughput of the terminal is designed to be 60,000TEU containers and 30,000tons of general cargo.

vi. Roads

It includes the expansion or construction of northeast link road, northwest link road and jetty link road, which will be of great significance to the interconnectivity between CEIZ and the jetty. As to the jetty link road, two design schemes (flyover and underpass) are analyzed and compared and the flyover scheme is recommended.

The proposed road work includes 3 sections with a total length of 2416m to be built, namely 456-meter CEIZ Northeast Link Road (NE Link) connecting the northeast entrance of CEIZ to National Highway Z1018; 725-meter CEIZ Northwest Link Road (NW Link) connecting the northwest entrance of CEIZ to the existing CUFL Road; a 1235-meter Jetty Link Road with a 330m long bridge starting from the intersection of the east-west section and the north-south section of CUFL Road and ending at the jetty site. Culverts, bridge and drainage are also part of the above-mentioned road construction.

vii. Other Ancillary Works

(1) Boundary Wall of CEIZ: The boundary wall line is set within the land boundary specified by the control regulations. The wall is designed to be 11700m long and 2.7m high with solid wall and masonry structure and cement mortar surface.

(2) Gate of CEIZ: There are 5 gates in CEIZ, including 2 main gates displaying the image of CEIZ and 3 auxiliary gates assisting production, cargo transportation and personnel evacuation.

(3) Solid waste collection station: Solid waste collection station is designed to handle 60 tons per day, covering an area of 0.35 hectares.

3. Objectives of the Assignment

The objectives of this assignment are as follows:

- Identify and finalize Employers Requirements;
- Preparation of Rough cost estimates and BoQ; and
- Preparation of Bidding Documents (EPC) for the Project;

4. Scope of the Services Required

The consultant will perform the following tasks, but not limited, to the following:

- Review all project documents including feasibility study report;
- Carry out site visit to check the location and ground conditions of proposed infrastructure;
- Preliminary survey and prepare rough estimates for the proposed infrastructure and BoQ;
- Identify Employer's Requirement's: Set out a description of the functional and/or performance specifications of the works to be designed and constructed. It shall present, as appropriate, a statement of the required standards for materials, plant, supplies, and workmanship to be provided.
- Finalize Employers requirements in consultation with BEZA and field survey;
- Carry out preliminary survey to finalize the environmental and social (ES) requirements;
- Preparation of Bidding Documents (International, Design Build)/Request for Proposals (RFP)-Works including Conditions of Contract for procurement of supporting infrastructure using Direct Procurement Method (DPM);

- Assist in contract negotiation with the selected Bidder;
- Prepare final contract;
- Any other tasks related to the project;

5. Duration of the Services

6 (six) months from the date of Contract signing;

6. Deliverables and Timeframe

All the study must be completed within a **6-month time** period. The following table identifies key deliverables and timeframes for the Study.

SN	Component /Activity		Deliverables	Timeline
1.	Deliverable-1	a) Submission of Inception Report and conducting presentation meeting	Inception Report & Presentation (10 copies)	Within 14 days of contract signing
		b) Submission of Final Inception Report after accommodating feedbacks received from presentation meeting and accepted by the Authority	Final Inception Report (3 copies)	Within one week after meeting
2.	Deliverable-2	Submission of Draft Bidding Documents and accepted by the Authority	Draft Bidding Documents (3 copies) with all data as required by the authority.	Within 45 days of contract signing
3.	Deliverable-3	Submission of Final Bidding Documents	Final Bidding Documents & Presentation (10 copies each)	Within 60 days of contract signing
4.	Deliverable-4	Submission of Contract Documents	Draft Contract Documents & Workshop (10 copies)	Within 180 days of contract signing

Note: All deliverables must be accomplished by both hard copy and soft copy both.

7. Payment Schedule

SN	Mile-Stone	Deliverables	Payment (% of contarct price)
1.	Deliverable-1	Inception Report	10%
2.	Deliverable-2	Draft Bidding Documents	40%
3.	Deliverable- 3	Final Bidding Documents	30%
4.	Deliverable-4	Contract Documents	20%

8. Key Expert, Non-key Expert & Support staff

Sl No.	Position	No. of Position	Total Person Month
Key Expert			
1	Team Leader (Sr. Procurement Specialist)	1	6
2	Infrastructure Specialist	1	4
3	Procurement Specialist	1	2
Non-key Expert			
1	Jr. Infrastructure Engineer	1	2

Support staff:

The Consultant will include necessary support staff like Estimator (Civil), Auto-CAD Operator, Estimator (Electro-Mechanical), Computer Operator, etc. required to carry out their tasks and fulfill their responsibilities effectively and efficiently within the stipulated time.

9. Qualifications and Experience of Key Staff

Sl. No	Expert position	Educational qualification & experiences	Duration
1	Team Leader (Sr. Procurement Specialist)	Minimum Bachelor's degree in Civil Engineering from any reputed institute with at least 20 years of working experience in the relevant field of assignment of which at least 10 years of experience as procurement consultant. The consultant should have experience in project management, coordination on design & drawings, civil construction, contract management, bidding documents preparation for large and complex works, etc. Strong background in preparation of international procurement	6 months

Sl. No	Expert position	Educational qualification & experiences	Duration
		bidding documents of different organization like World Bank, FIDIC, etc. Familiarity with relevant EPC/Turnkey Projects/Design Build Contracts, Public Procurement Act and Rules, development activities under economic zones; Ability to provide the full range of procurement assistance with independent responsibility; Ability to build effective working relations with Client's and colleagues.	
2	Infrastructure Specialist	Minimum Bachelor's degree in Civil Engineering from any reputed institute with overall working experience of 15 years of general experience of which at least 10 years of working experience in the relevant field of assignment including civil construction works. The consultant should have experience in project management, coordination on design & drawings, civil construction, contract management, etc. Prior experience in procurement and contract management is required. Ability to provide the full range of works requirements in establishing a new economic zone with independent responsibility;	4 months
3	Procurement Specialist	Minimum Bachelor's degree in Civil Engineering from any reputed institute with at least 15 years of general experience of which at least 7 years of experience as procurement consultant. The consultant should have experience in project management, civil construction, contract management, bidding documents preparation for large and complex works, etc.	2 months

10. Facilities to be provided by the Client

The client will provide all available project documents including feasibility study report. No office space, office equipment and consumables will be provided by the client.