



Gwadar Smart Port City Master Plan

Terms of Reference (TORs)

1. Introduction

The development of Gwadar is a strategic priority for the Government of Pakistan, (GoP). The commercial, political, socio-economic, defense and regional connectivity related benefits that can be realized once the port (and the city) reaches its full potential make it imperative to develop the area without any further delay.

Lying at the mouth of the Persian Gulf, Gwadar is a strategic warm water deep sea port developed by the GoP with assistance from the People's Republic of China. Inaugurated in 2007, the port is ideally located to serve the shipping lanes coming in and out of the Persian Gulf via the choke-point of the Strait of Hormuz. In spite of the fact that the sea channels off the coast of Gwadar carry roughly 15-17 million barrel of oil every day (or a third of all the seaborne oil traded in the world), the port of Gwadar has yet to fulfil its promise and take advantage of its strategic location. A shortage of resources, the non-fulfilment of concession agreements by the GoP and the original concessionaire (the port of Singapore Authority), and the limited commercial activity in Gwadar city have together retarded the development of the port over the few years.

The current master plan (last updated in 2005) has two interdependent elements: the port, and the city of the Gwadar. This strategic focus on simultaneous development is primarily due to the natural, symbiotic relationship that exists between a port and the city that surround it; One cannot be developed without the other. In addition, the city around a port must also be planned carefully in order to lay foundation of a sustainable regional economy, drive local business and increase port throughput. With the inclusion of the port in the China Pakistan Economic Corridor project (CPEC), there is an urgent need to update the existing city plans to reflect the new strategic direction. It is pertinent to mention here that the CPEC is already in the early stages of execution and comprises of a comprehensive package of motorways/expressways, national and urban railways, high speed fiber-optic connectivity and associated urban and social infrastructure, stretching from kashgar (in China) to Gwadar (in Pakistan). Under the plans for the corridor, it is envisaged that the port would be declared a 'free port (to facilitate transshipment) and the city would be declared a 'Special Economic Zone' in order to spur trade and investment.

2. Project Objectives

The main objective of the project is to update the existing city plans to reflect the new strategies direction of Gwadar's development.

3. Scope of Work

In order to evaluate the existing environmental condition of the Gwadar, the laboratory approved from EPA is required to undertake environmental monitoring sampling and testing of ambient air, noise, drinking water and wastewater in Project Area.

The scope of work consists of but not limited to the following activities/requirements:

- a) National and International accepted code of practices will be used for drinking water, surface water and wastewater sampling (collection method, precautions/instructions for sampler, sample preservation before delivered to laboratory for analysis etc.).
- b) Integrated composite sampling will be carried out for obtaining wastewater samples.
- c) Air and noise quality assessment will be carried out to analyze the existing ambient air quality and noise levels in the project area.
- d) The Bidder/Contractor will undertake the required testing/monitoring for the following parameters and number of samples:

Sr. No.	PARAMETERS	Sampling Duration/type	Quantity	Rate (Rs.)	Amount (Rs.)
1	<p>Wastewater Quality</p> <p>Physical: Temperature, Color, pH, Biochemical Oxygen Demand (BOD₅), Chemical Oxygen Demand (COD), Total Dissolved Solids (TDS), Total Suspended Solids (TSS), Grease and Oil</p> <p>Chemical: Phenolic compounds (as phenol), Chlorides, Fluorides, Cyanide, Anionic detergents, Sulphate, Sulphides, Ammonia, Cadmium, Chromium (trivalent and hexavalent), Copper, Lead, Mercury, Selenium, Nickel, Silver, Zinc, Arsenic, Barium, Iron, Manganese, Boron, Chlorine Total.</p>	Composite Sampling	04		
2	<p>Drinking Water Quality</p> <p>Bacterial E.coli, Fecal Coliform, Total Coliform Bacteria</p> <p>Physical PH, Colour, Taste, Odour, Turbidity, Total Hardness as CaCO₃, TDS,</p> <p>Chemical Aluminium (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Boron (B), Cadmium (Cd), Chlorine (Cl), Chromium (Cr), Copper (Cu), Cyanide (CN), Fluorine (F), Lead (Pb), Manganese (Mn), Mercury (Hg), Nickel (Ni), Nitrate (NO₃), Nitrite (NO₂), Selenium (Se), Residual Chlorine, Zinc (Zn).</p>		10		

Sr. No.	PARAMETERS		Sampling Duration/type	Quantity	Rate (Rs.)	Amount (Rs.)
2	Surface Water	<u>Bacterial</u> E.coli, Fecal Coliform , Total Coliform Bacteria <u>Physical</u> PH, Colour, Taste, Odour, Turbidity, Total Hardness as CaCO ₃ , TDS, BOD and COD <u>Chemical</u> Aluminium (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Boron (B), Cadmium (Cd), Chlorine (Cl), Chromium (Cr), Copper (Cu), Cyanide (CN), Fluorine (F), Lead(pb), Manganese (Mn), Mercury (Hg), Nickel (Ni), Nitrate (NO ₃), Nitrite (NO ₂), Selenium (Se), Residual Chlorine, Zinc (Zn), Calcium (Ca), Magnesium (Mg), Sodium (Na), Strontium (Sr), Iron (Fe), Argon (Ar), Sulphate (SO ₄), Nitrate (NO ₃), Phosphate (PO ₄).	Grab Sampling	02		
3	Ambient Air Quality Monitoring	NO, NO ₂ , SO ₂ , Lead, SPM, PM _{2.5} , PM ₁₀	24 hours	10		
		CO	8 hours			
		O ₃	1 hour			
4	Noise	Continuously 24 Hours monitoring of Noise on db(A) L _{eq}		10		

- e) Sampling methodology shall be as per National Environmental Quality Standards (NEQS) Environmental Sample Rules, 2001 Statuary Notification S.R.O.527 (1)/2001 and USEPA.
- f) Monitoring methodology for all the parameters will be in accordance with the requirements of National Environmental Quality Standards (NEQS). Sampling methodology will be approved by NESPAK before mobilization to site.
- g) Analytical procedures shall be according to USEPA methods. Results of analysis will be compared with NEQS, 2010 limits. However, where these standards do not provide

limits for certain parameters, other appropriate international standards will be used for comparison.

- h) Error free and upto date equipment should be used for air, noise, drinking water, surface water and wastewater sampling and testing.
- i) The contractor will provide comprehensive report on air, noise, drinking water, surface water and wastewater, which will include, but not limited to the following:
 - I. General
 - II. Sampling methodology and Locations
 - III. Analysis of results with seasonal variation, remarks/comments and mitigation
- j) The security arrangement for sampling shall be bidder/contractor's responsibility.
- k) The mobilization time will be 10 days after award of work.
- l) The report must be submitted within one (1) month after mobilization.
- m) Unit rates quoted for testing/monitoring shall include all taxes and other costs including the cost of collection, preservation and transportation of samples to the laboratory, security (if required during field work), accommodation, travelling, mobilization etc.

4. Monitoring Report

After completion of monitoring and testing results will be compared with NEQS and a comprehensive report on baseline of air, noise, drinking water, surface water and wastewater monitoring will be prepared and submitted by the monitoring laboratory within one (1) month after mobilization. Reports will cover the introductory part, sampling methodology, locations clearly marked with coordinates, monitoring photographs, analysis of results/remarks and details about emissions.

5. Technical Evaluation Criteria

Evaluation criteria for the laboratory selection shall include the following:

- Valid EPA certification of laboratory
- Certification for all the parameters mentioned in TOR