Terms of Reference

For the Replacement of the Damaged Treated Wastewater Pipes in Tank D4 at the Profitis Ilias Community and the Rehabilitation of Mesarmos and Asproxomata Water Pumping Stations in the Munucipality of Heraklion, Crete

In the framework of
the "ZERO DROP Heraklion" project

Funded by
The Coca-Cola Foundation
Coca-Cola 3E

1. Background

1.1. The "ZERO DROP Heraklion" Project

Heraklion, Greece's sixth largest city and capital of the island of Crete, faces substantial challenges in terms of water security. The urban water supply network is struggling to meet demand, particularly in the summer months, partly due to a chronic lack of adequate public investment. This results in interruptions in the water supply to residents, who are often forced to rely on filling up water tanks located in apartment blocks and individual residencies. This also fuels tensions at community level between competing water uses, namely the tourism industry, agricultural users and other industries, and residential users. These challenges are bound to become more intense as climate change gathers pace in the region rendering the local community vulnerable to its impacts. In spite of the great potential of wastewater reuse to provide a large source of water supply for secondary uses, currently this option remains 'below the radar' in the city of Heraklion.

ZERO DROP Heraklion aims to demonstrate in the urban setting of the Municipality the practicality of using treated effluent to provide visible community benefits, in the form of additional water resources for green spaces' irrigation. The project will provide several WASH and Climate Resilience benefits to Local Communities and serve as a pilot paving the way for a scaling-up of related projects in the municipality. Additionally, it will promote Environmental and Sustainable Business practices by laying both the practical and conceptual foundations for making productive use of the largest alternative water supply available and for disseminating and building upon existing best-practices.

Building on global and Mediterranean best practices and responding to national political priorities and local operational plans, the proposed "Zero Drop Heraklion" Project aims at increasing water efficiency and utilizing replenished water in support of municipal green spaces in the city of Heraklion, contributing to water security and climate change adaptation.

GWP-Med is a leading partner in related action lines for water security and climate resilience of local communities in the Mediterranean. Since 2008, GWP-Med has implemented several

successful projects with the support of The Coca-Cola Foundation and the Coca-Cola system and a total of 124 interventions of various scales in Greece, Malta, Cyprus and Italy.

The Project will (i) implement of 1 – 2 technical interventions aiming at replenishing / saving approximately 9,000,000 liters of water on annual base for public use, (ii) offer capacity building and youth engagement activities towards technically sound and socially acceptable Non-Conventional Water Resources (NCWR) applications, and (iii) raise inhabitants', visitors' and the general public's awareness on the importance of conserving water.

Opportunities to communicate project results and achievements to local, national and international audiences / communities will be further explored while the end of the program will be marked by a public event that will showcase the completed works and will discuss follow-up steps, including towards engaging project partners to follow up activities.

2. Description of the Assignment

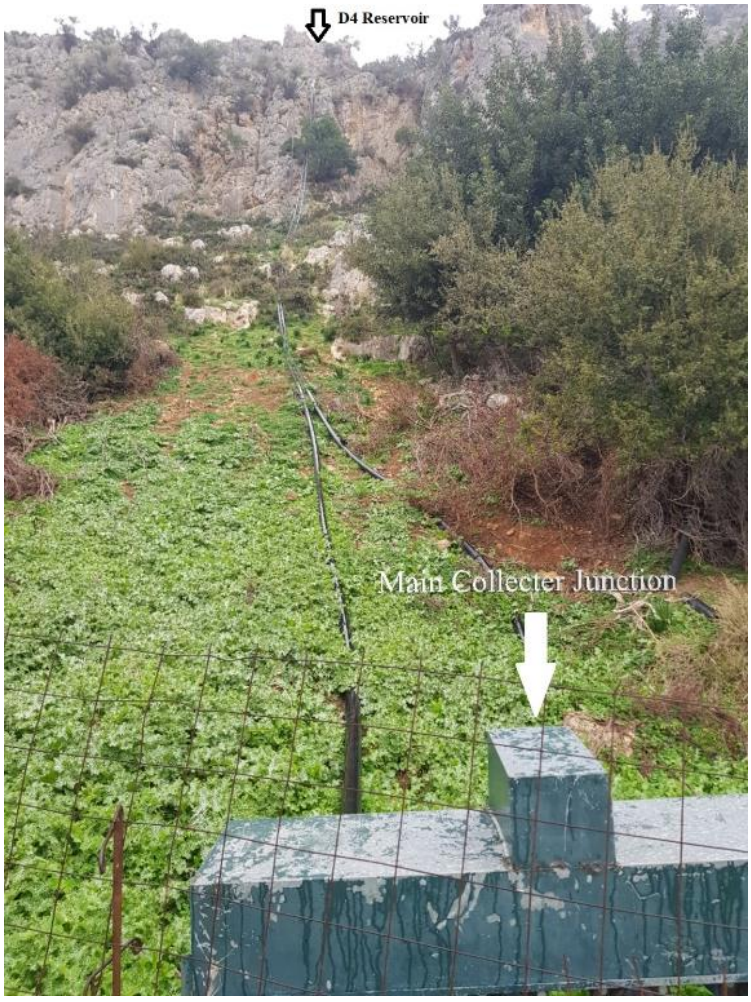
2.1. Objective

The objective of the assignment is the Replacement of the Damaged Treated Wastewater Pipes in Tank D4 at the Profitis Ilias Community and the Rehabilitation of Mesarmos and Asproxomata Water Pumping Stations in the Municipality of Heraklion, Crete.

2.2. Requested Services

The tasks envisaged to be undertaken as part of this assignment consist of the following:

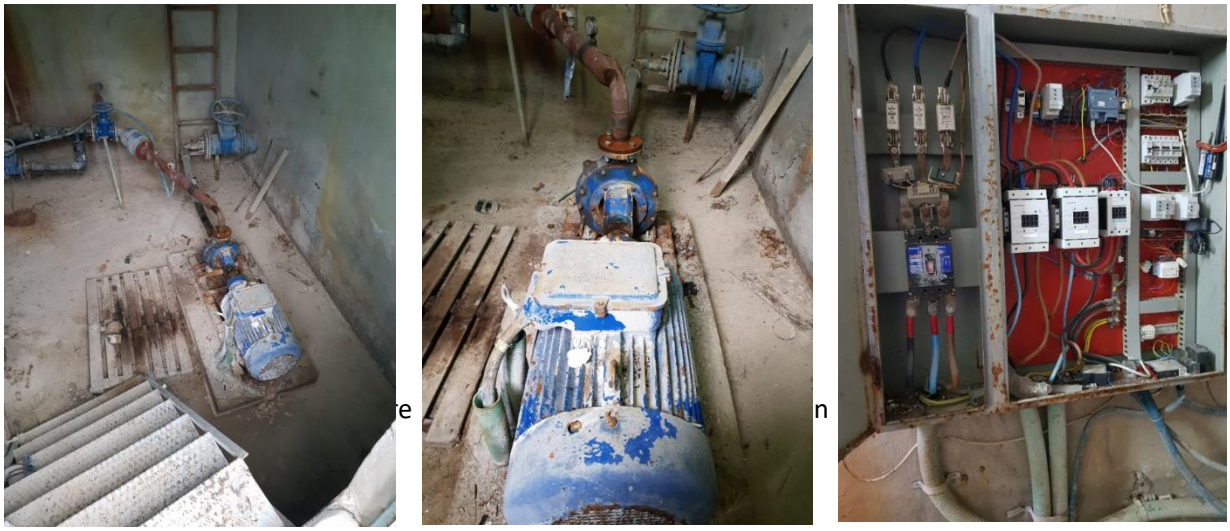
a) Replacement of the three damaged treated wastewater pipes in Tank D4 (X: 600.285,47, Y: 3.896.877,13, Z: 401,88) at Profitis Ilias Community (Picture 1 – 3). This sub-assignment also includes the support of the new pipes and the installation of pressure release valves to avoid damages from water hammering.
b) The complete rehabilitation of the Mesarmos water pumping station (X: 597.350,56, Y: 3.905.302,35, Z: 152,05) at the Community of Voution (Picture 4). This sub-assignment includes, but not limited to, the replacement of the existing pump and the existing electrical / automation boards.
c) The complete rehabilitation of the Asproxomata water pumping station (X: 596.340,22, Y: 3.903.924,91, Z: 213,91) at the Community of Voution (Picture 5). This sub-assignment includes, but not limited to, the replacement of the existing pump and the existing electrical / automation boards.



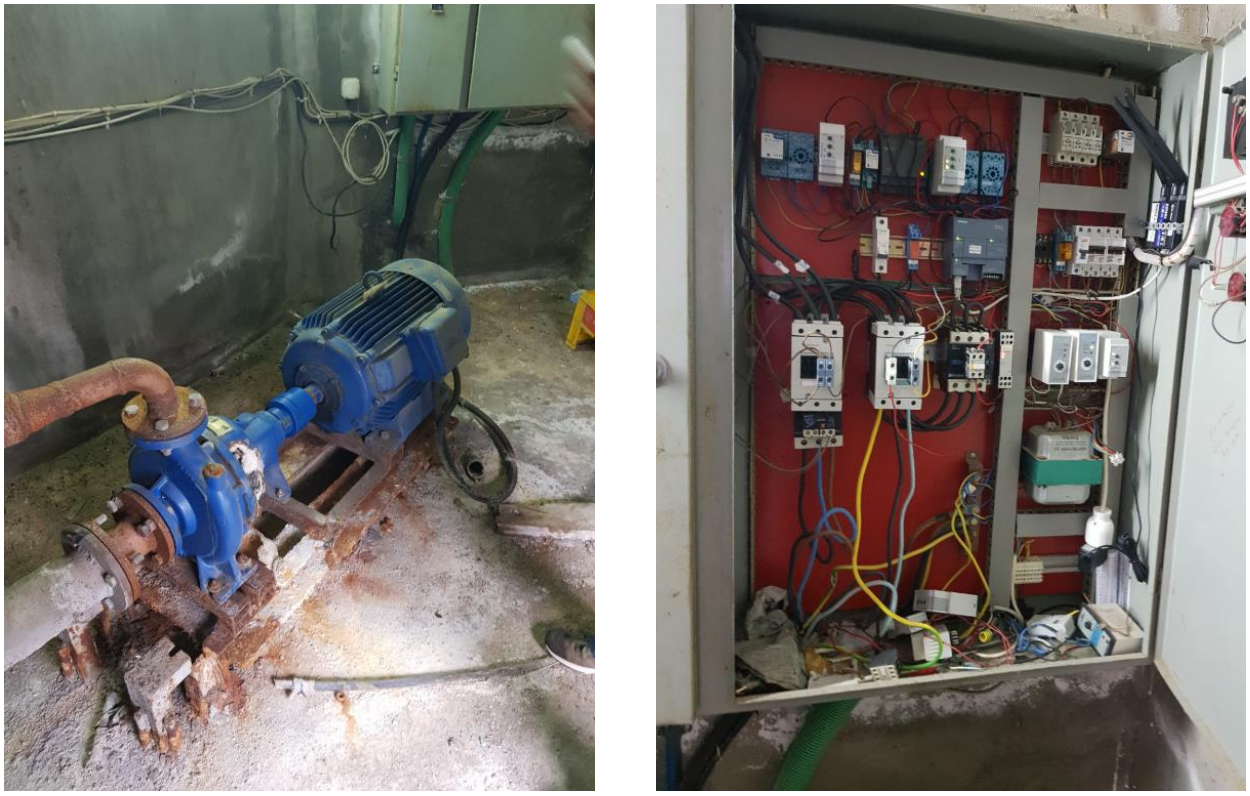
Picture 1. Pipelines to be replaced and supported.

Picture 2. Pipelines to be replaced and supported.

Picture 3. Tank D4.



Picture 4. The Mesarmos pumping station



Picture 5. The Aspoxomata pumping station

2.3. Deliverables

Item	Description	Unit	Quantity
A	**Pipes in D4 Tank**		
A1	PE pipes 110mm, 20atm	m	350
A2	Pressure relief valves	pcs	3
A3	Installation Cost (including the support of the pipes)	Lump sum	1
B	**Mesarmos Pumping Station**		
B1	Vertical multistage pump / motor (Q=60m3/h – H=93m – P=22kW)	pcs	1
B2	Pump base unit	pcs	1
B3	Gate valves, DN100, PN16	pcs	2
B4	Non return valve, DN100, PN16	pcs	1
B5	Electromagnetic Water Meter, (4-20mA, 0.10V), DN 100, PN16	pcs	1
B6	Pressure sensor, (4-20mA, 0.10V)	pcs	2
B7	Pipe ASTM-A53, GR-B, Sch.40, DN 100 (114mm)	m	6
B8	Steel Flanges DIN 2577, PN16, DN 100	pcs	8
B9	Galvanized Nuts and Bolts, M16X70	pcs	80
B10	Electric board	pcs	1
B11	Inverter 30kW	pcs	1
B12	GSM Router	pcs	1
B13	E1VV-R cables, 5X50mm^2	m	15
B14	HO7RN-F cables 4X25mm^2	m	20
B15	Triangle Ground System	pcs	1
B16	Grounding wire 25mm^2	m	15
B17	Disassembly and transportation for recycling of all old equipment	Lump sum	1
B18	New pumping equipment installation	Lump sum	1
B19	Installation of all hydraulic equipment	Lump sum	1
B20	Electrical installation	Lump sum	1
B21	Programming and configuration of all electronic equipment	Lump sum	1
B22	Grounding installation	Lump sum	1
B23	Testing and startup (including the certificate of electrician / installer)	Lump sum	1
C	**Aspoxomata Pumping Station**		
C1	Vertical multistage pump / motor (Q=60m3/h – H=93m – P=22kW)	pcs	1
C2	Pump base unit	pcs	1
C3	Gate valves, DN100, PN16	pcs	2
C4	Non return valve, DN100, PN16	pcs	1
C5	Electromagnetic Water Meter, (4-20mA, 0.10V), DN 100, PN16	pcs	1
C6	Pressure sensor, (4-20mA, 0.10V)	pcs	2
C7	Pipe ASTM-A53, GR-B, Sch.40, DN 100 (114mm)	m	6
C8	Steel Flanges DIN 2577, PN16, DN 100	pcs	8
C9	Galvanized Nuts and Bolts, M16X70	pcs	80
C10	Electric board	pcs	1
C11	Inverter 30kW	pcs	1
C12	GSM Router	pcs	1
C13	E1VV-R cables, 5X50mm^2	m	15
C14	HO7RN-F cables 4X25mm^2	m	20
C15	Triangle Ground System	pcs	1
C16	Grounding wire 25mm^2	m	15
C17	Disassembly and transportation for recycling of all old equipment	Lump sum	1
C18	New pumping equipment installation	Lump sum	1
C19	Installation of all hydraulic equipment	Lump sum	1
C20	Electrical installation	Lump sum	1
C21	Programming and configuration of all electronic equipment	Lump sum	1

C22	Grounding installation	Lump sum	1
C23	Testing and startup (including the certificate of electrician / installer)	Lump sum	1

Technical Specification of Proposed equipment

Equipment should:

- be new (not used or refurbished)
- have authorized dealers and service centers in Greece
- be accompanied by appropriate certifications (i.e. ISO, CE, etc.)
- be approved by Global Water and the Technical Department of the Municipality of Heraklion

Motors must be:

- 22kW
- 400V, 50Hz
- be at least IE3 category
- 2-pole standard motors with principal dimensions to EN standards.
- Electrical tolerances according to EN 60034.

Pumps must be:

- non-self-priming,
- vertical multistage centrifugal pumps.
- consists of a base and a pump head.
- the chamber stack and the sleeve must be secured between the base and the pump head by means of staybolts.
- the base must have inlet and outlet ports on the same level (in line).
- be fitted with a maintenance-free mechanical shaft seal of the cartridge type.

Materials

Pump head cover	Ductile cast iron EN-GJS-500-7 ASTM A536 70-50-05
Motor stool Grey	cast iron EN-GJL-200 ASTM 25B
Shaft	Stainless steel EN 10088 1.4057 AISI 431
Impeller	Stainless steel EN 10088 1.4301 AISI 304
Chamber	Stainless steel EN 10088 1.4301 AISI 304
Sleeve	Stainless steel EN 10088 1.4301 AISI 304
O-ring for sleeve	EPDM or FKM - -
Base	Ductile cast iron EN-GJS-500-7 ASTM A536 70-50-05
Neck ring	Carbon-graphite- filled PTFE - -
Shaft seal (seal faces)	Silicon carbide/Silicon carbide - -
Bearing ring	Silicon carbide/Silicon carbide - -
Support bearing	Carbon-graphite- filled PTFE - -
Base plate	Ductile cast iron EN-GJS-500-7 ASTM A536 70-50-05
Rubber parts	EPDM or FKM - -

Performance curves must be at least conforming according to ISO 9906, Grade 2.

Inverters

- Built-in 10K steps PLC in order to execute distributional control and independent control when connecting to a network system.
- Calendar function to allow user to program the PLC procedure, ON/OFF in chronological order, daylight saving time and etc.
- Easy maintenance and expansion.
- High speed communication interfaces with MODBUS protocol and BACnet protocol built in. Diverse communication methods to satisfy client's needs on multi-controls. So that the following options are available for you: the ProfiBUS-DP, the DeviceNet, the MODBUS TCP, the Ethernet-IP and the CANopen Cards.
- Long-life design and self-diagnosis for key components.
- Special PCB coating design (Printed Circuit Board) for enhancing environmental tolerance.
- Complied with global safety standards: CE, UL and cUL
- Standard LCD model (IP20/NEMA1) with built-in PLC to support up to 10K steps
- Heat-sink design. Able to operate at 50°C ambient temperature and to adjust automatically rated output value to make the AC drive to work continuously.
- Run fire mode while emergency to have uninterrupted smoke releasing and pressure adding
- Multi pumps control at fixed amount, fixed time circulating control. Able to control up to 8 pumps at the same time.

Supplier must:

- be certified in order to carry out such operations (i.e. ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 22301:2019)
- be able to provide proof of at least 5 similar projects within the past 3 years
- have appropriate equipment and sufficient technical personnel
- have inhouse service center with appropriate testing equipment
- have sufficient transport vehicles (i.e. cranes)

This tender is not divided into lots, and tenders must be for the works indicated.

2.4. Assignment Outputs

a) Replacement of the three damaged treated wastewater pipes in Tank D4 (X: 600.285,47, Y: 3.896.877,13, Z: 401,88) at Profitis Ilias Community, as described in sub-chapters 2.2 and 2.3, and the delivery of the project.
b) The complete rehabilitation of the Mesarmos water pumping station (X: 597.350,56, Y: 3.905.302,35, Z: 152,05) at the Community of Voution, as described in sub-chapters 2.2 and 2.3, and the delivery of the project.
c) The complete rehabilitation of the Asproxomata water pumping station (X: 596.340,22, Y: 3.903.924,91, Z: 213,91) at the Community of Voution, as described in sub-chapters 2.2 and 2.3, and the delivery of the project.

2.5. Obligations

During the construction phase of the project, the following obligations are put into force:

- Removal of any vegetation, to be limited to the minimum degree required and exclusively for the construction needs of the project.
- All necessary measures (marking, fencing, etc.) to avoid accidents, to protect residents and workers from danger that may be created during the construction of the project, to be taken.
- Storage of materials, even temporary, at the construction area is prohibited.
- After the completion of the construction, if necessary, the rehabilitation of the construction area needs to be conducted.
- Pictures of the work progress should be collected and sent to GWP-Med.
- A final list of materials and equipment to be sent to GWP-Med.
- The electrical works must be performed by a certified electrician.

2.6. Health and Safety Precautions

Responsibility for all aspects concerning health and safety issues for the duration of this project is vested entirely in the contractor entrusted to do this job, who will exercise all control over operations, materials, his employees, and all other factors respecting health and safety norms.

2.7. Reporting line

The awarded contractor will communicate directly with Dr. Nikos Skondras, Senior Program Officer at GWP-Med (Contracting Authority).
Additionally, the awarded contractor will consult with and work under the direct supervision of the technical representatives of the Municipality of Heraklion (Supervising Authority).

2.8. Monitoring and Progress Controls

Dr Nikos Skondras, Senior Programme Officer at GWP-Med, and Mr. Charalampos Lappas, Programme Officer at GWP-Med, will be providing oversight and guidance from the side of the Project Team. Coordination calls between the consultant and the Project Team will be held at weekly basis, to monitor the progress of the assigned services.
Services will be rendered and will be considered completed upon approval of the deliverables by the Project Coordinator and the GWP-MED Executive Secretary.

2.9. Site Visit

The bidders are encouraged to visit the points of the technical interventions in order to have an understanding of the actual conditions at the equipment installation points in order to be able to prepare their technical offer and assess the situation for the preparation of their financial offer.

The bidders that wish to visit the sites of interest are requested to contact Mr. Charalampos Lappas (charalampos.lappas@gwpmed.org) and Mr. Skondras (nikos.skondras@gwpmed.org) up to Friday 24/2/2023, 11:00 CET.

3. Duration of the Contract

Delivery of the works should be completed by 02/06/2023.
The overall duration of the contract will be maximum by 30/06/2023.

The date of the commencement of the contract execution shall be the last signing of the contract.

4. Contract Price, Schedule of Payments

The maximum fee for this assignment is **100,000 EUR excluding VAT**. This amount includes all other costs, income taxes, and any other amount payable or cost that may be required for the completion of the service.

The schedule of payments is as follows:

- 30% payment upon satisfactory completion of the sub-assignment in Profitis Ilias.
- 35% payment upon satisfactory completion of the sub-assignment at the Mesarmos Water Pumping Station.
- 35% payment upon satisfactory completion of the sub-assignment at the Asproxomata Water Pumping Station.

The payments will be issued upon assessing the service provided in collaboration with the Municipality of Heraklion.

5. Guarantee

The awarded contractor will provide a Guarantee on all equipment for a minimum period of 12 months against faulty workmanship and materials and on the operation of the system as a whole. If during this period any parts or equipment have to be changed (due to faulty workmanship and not due to the selected operation conditions), the guarantee on that part is to be renewed for another year from date of replacement. The initial guarantee as well as the replacement guarantee include the equipment cost (transfer, labour cost, taxes, insurance etc.).

In the event that there are delays in the execution of the contract the awarded contractor shall be liable to pay compensation in the form of a penalty. The amount of the flat rate compensation per day of delay (penalty) shall be of 1% of the net contract value per week up to a limit of 10% of the total contract value. For the calculation of penalties, the number of days of delays shall be converted into weeks by rounding down to the nearest week.

The awarded contractor agrees to submit to the Contracting Authority one Performance Guarantee accounting to 5% of the contract value.
The successful participant shall, within ten (10) calendar days of the receipt of the contract, sign and date the contract and return it together with a copy of the Performance Guarantee. Any Performance Guarantee issuance expenses bear's the successful participant.

The Performance Guarantee shall be released after the completion of three (3) months from the written acceptance of the works performed by the Municipality of Heraklion.
The Contracting Authority will not affect any payment to the Contractor until the Performance Guarantees have been submitted.

6. Selection Criteria (Pass / Fail)

Successful participants must:

- Be enrolled in one of the official professional or trade registries at the country of registration.
- Be licensed to perform works in Greece.
- Provide Certification to carry out the requested works (ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 22301:2019 or equivalent).
- Provide a statement of availability of resources (e.g. tools, equipment, personnel / technicians) to perform the requested tasks. Minimum requirements:
  - Power cutting tools (e.g. angle wheel)
  - Drilling and screwing power tools
  - Testing and measuring equipment for the electrical works (e.g. multi-meter)
  - Small concrete mixer
  - Small crane for moving heavy equipment.
  - An electromechanical engineer (technical education) in the team who will perform the tasks.
  - One certified electrician / installer (see below for details)
- Provide a statement of occupying at least one certified electrician / installer to perform the electrical works. The statement must be accompanied by a copy of the respective certification).
- Provide a statement of understanding the requested objective, services and deliverables.
- Provide a Graphic Works Schedule - Program of Works in the form of a Gantt Chart.
- Provide the datasheet of the offered pumps and inverters.
- Provide a signed statement certifying that the equipment is new and unused and has authorized dealers and service centers in Greece.
- Provide the CE or ISO certificates of the pumps, the inverters, the GSM Router, the pressure sensors, the electromagnetic water meter and the pressure relief valves.
- Provide a warranty for good operation for at least:
  - 1 year for the offered pumps and inverters
- Provide Certification of payment of Taxes
- Provide Certification of payment of Social Insurance contributions
- Official registration document and company profile proving Minimum ten (10) years of experience in related hydraulic and electrical installations.
- Provide a list of at least five (5) projects of similar nature and / or budget size in the last three (3) years (Provide information in the following form).

Title of the Project / Assignment	

Date & duration of the Project / Assignment	
Geographical area of the intervention	
Contents of intervention (mention briefly key elements like type of works and key metrics)	
Cost of the Project / Assignment	
Funding authority and end-client (if different), contact details for reference cross-checking*. • Name of the client • Email of the client * The participants provide consent to the Contracting Authority to contact the listed clients. In case of confidentiality matters, please indicate.	

Failure to provide the minimum required qualifications is considered ground for disqualification.

7. Awarding Criterion and Evaluation Process

Award criterion is the Most Economically Advantageous offer with criterion the lowest price for the offers satisfying the selection criteria.

8. Submission of Offers

Please refer to the **Call for Offers Document** for the proper submission of the Technical and Financial Offer.