Terms of Reference

For
Supply of Solar Powered Equipment / Panels for the Production of Potable Water from the Atmospheric Moisture and Installation at a Concrete Shed at the Port and on the Roof of the Town Hall of Folegandros Island.

In the framework of
the "ZERO DROP" project

Funded by The Coca-Cola Foundation

1. Background and context

1.1. The ZERO DROP Project

The small arid islands of the Aegean Sea in Greece are under significant water stress, particularly in summer months, when seasonal tourism spikes water demand, jeopardizing local water and, consequently economic, security. Water resources abstraction is mostly accompanied by pumping and high energy costs, as well as significant environmental threats by groundwater depletion and desalination. Climate change impacts are also expected to aggravate the situation.

At the same time, tourism is becoming a key economic activity, accounting for 20% of national GDP and more than 80% of local economy. However, tourism is a water thirsty activity. With an average daily domestic consumption calculated in the country at almost 200 litres, the daily consumption of a tourist is estimated between 350-1.000 litres, depending on the lodging class and facilities.

In order to meet the water demand of locals and tourists, authorities engage usually in top-down solutions to increase water supply, often with high environmental impact, like desalination, overlooking sustainable management options like water efficiency measures, including loss reduction, rainwater harvesting, reuse, etc. and behavioral change towards water conservation. Global, as well as European, best practices point to water efficiency measures as significant contributors to sustainable tourism and development.

In this regard, GWP-Med developed the "ZERO DROP" concept and methodology, aiming to:

- Increase water efficiency, decrease losses and utilize every drop for local water security and climate change adaptation by deploying and showcasing appropriate solutions, from mainstream to innovative.
- Create awareness for users, tourists and citizens, on the value of water as key factor towards sustainability.
- Improve management of water resources through partnerships via increasing capacities, advancing advocacy, dialogue and knowledge sharing, with youth and gender engagement.

"ZERO DROP" is a 2-year project that will adopt one small Greek island to address water challenges in an integrated manner, as well as engage in activities beyond the project island to showcase

good practices and solutions. It will target, as priority, an island with water scarcity, which is a touristic destination and, preferably, has women mayor, and will apply an integrated approach to improve water efficiency in the tourism sector, one of the key economic and heavily water-reliant sectors, and to spread the message across various audiences and stakeholders.

The ZERO DROP approach includes:

i. Technical solutions,
ii. Educational activities,
iii. Youth engagement and gender mainstreaming,
iv. Capacity building & training,
v. Awareness raising,
vi. Advocacy

The "ZERO DROP Island" will aspire to constitute a powerful model for sustainable use of water resources in the tourism sector, adding value to the destination and reaching out to mindful tourists, setting a paradigm for blue and sustainable economy to locals, visitors and beyond.

1.2. The Island of Folegandros

The ZERO DROP project selected the Island of Folegandros for its operations as it matches the set criteria:

- Lack of water
- Woman Mayor
- Touristic destination

Folegandros Island is one of the most picturesque islands of the Cyclades Islands chain. Its wild natural landscape and peaceful atmosphere make this island a great destination. It boasts traditional Cycladic architecture. That means that its villages are made up of tiny, whitewashed houses, narrow alleys, and colorful windows.

The island of Folegandros has a population of 780 inhabitants (Census 2011) and has developed intensive touristic activities that provide the main revenue of the local economy. Specifically, the island has a hotel / rooms to let capacity of 3.000 beds and receives more than 45.000 per year. The touristic facilities operate with 100% capacity for 60 days or with 70 – 72% capacity for 120 days.

Water is essential for the maintenance and further growth of the tourism sector of the island. Generally, Folegandros Island continues to lack the necessary water quantity and quality to meet its needs. Efforts have been made in the past for both increasing water supply and reducing water demand.

Hoteliers highlighted the need for a broad awareness campaign targeting tourists, to make them aware of the island's struggle with water scarcity and to encourage them to save water in their lodgings. (It was mentioned that 'the sight of swimming pools in many facilities is giving the wrong impression of an abundance of water').

2. Description of the Assignment

2.1. Objective

The location of the assignment is the Greek island of Folegandros.

The objectives of the assignment are as follows:

The supply and installation of solar powered equipment / panels for the production of potable water from the atmospheric moisture in Folegandros Island.

I. Port of Folegandros Island:

- Supply and installation of four (4) solar powered equipment / panels for the production of potable water from the atmospheric moisture, will be installed on the roof of a concrete shed at the port of Folegandros Island (Annex Fig. 1 – 5).
    - The panels should be accompanied by a mobile device (tablet or smart phone) and an application (App) to present the remaining volume of water. The water volume visual will be transferred to a screen via an HDMI cable (which should also be included in the present purchase).
- Supply and installation of a water cooler that will accompany the four (4) panels. The cooler will be installed under the shed (Annex Fig. 6).

Any electrical connection required (e.g. for the water cooler and the charging point of the mobile device) should be made on the electrical board near the shed (Annex Fig. 4 – 5).

II. Town Hall of Folegandros Island:

- Supply and installation of two (2) solar powered equipment / panels for the production of potable water from the atmospheric moisture, will be installed on the roof of Town Hall of Folegandros Island (Annex Fig. 7 – 8).
    - The panels at the Town Hall building will be connected to an existing water cooler.

Dimensions:

The dimensions (L x W) of the installation locations are:

- Shed roof: 10,00 m x 2,50 m
- Municipality building roof: 9,00 m x 5,00 m

2.2. Indicative Technical Specifications

2.2.1. Solar Powered Water Producing Panels

Installed Dimensions (L x W x H)	: 2,40 m x 1,20 m x 1,00 m (at 45°)
Weight	: 150 – 160 kg
Sterilization / disinfection of water	: On-board
Mineralization of water	: On-board
Water production	: 90 – 150 l/month
Power source	: Solar power
Noise	: Silent mode to be included
Water quality	: In compliance with the Greek laws for potable water

Installation : On suitable metal structure
Visualization Application : To be included

2.2.2. Water Cooler Under the Shed at the Port (indicative)

Power supply : 220 – 240V/50 – 60 Hz
Compressor power : 1/10 HP
Refrigerant gas : R134a
Materials : ABS Plastic
Water inlet – outlet connection : 1/4”
Cold/Hot water tank : Stretched stainless steel
Adjustable thermostat : Bimetal
Cooling production : 5 lt/h
Cold water temperature : 4 – 10oC
Power consumption (cold) : 90W
Dimensions : 28x41x56 cm
Weight : up to 20 kg

2.2.3. Installation

The installation of the equipment will be made in such a way for the easy dismantling and removal of the equipment (if requested by the Mayor).

2.2.4. Mobile Device

The supplier will also provide a mobile device which will be connected to a screen (out of scope) to display the availability of produced water.
The mobile device should be protected from the harsh environmental conditions (e.g. direct exposure to the sun or humidity).

2.3. Required Services

A/A	Service / Task	Quantity
A. Supply and Installation		
1	Supply and installation (on proper metal framework) of four (4) solar powered water producing panels (from the atmospheric moisture) at the roof of the concrete shed at the port. Supply and Installation of one (1) water cooler to the four (4) panels. Supply of a mobile device to be connected to screen and display the availability of water (including the HDMI cable). The screen is out of the scope of the present supply. Specific requirements:	Lump sum

	○ The piping from the solar powered water producing panels to the water cooler should be hidden (e.g. plastic piping channels) ○ The cables from the water cooler to the power source should be hidden (e.g. plastic piping channels). ○ The equipment should be delivered ready to operate. The hiding of the piping and the cables behind is essential for those lines not to interfere with the make-over / decoration / preparation activities that will take place under the shed.	
2	Supply and installation (on proper metal framework) of two (2) solar powered water producing panels (from the atmospheric moisture) at the roof of the municipality building. Installation of one (1) existing water cooler to the four (4) panels on the roof of the municipality building. Specific requirements: ○ The piping from the solar powered water producing panels to the water cooler should be as discrete as possible or even hidden (e.g. plastic piping channels) ○ The equipment should be delivered ready to operate.	Lump sum
B. Drawings		
1	Preliminary drawings on the installation array and the hydraulic connection.	1
2	Final drawings on the installation array and the hydraulic connection.	1

2.4. Obligations

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

- All necessary measures (marking, etc.) to avoid accidents, to protect residents and workers from danger that may be created during the installation of the equipment, to be taken.
- Storage of materials, even temporary, outside the construction area is prohibited.
- After the completion of the equipment installation, the rehabilitation of the installation area needs to be conducted.

2.5. Assignment Outputs

The outputs of the assignment are the following:

The complete installation of solar powered equipment / panels for the production of potable water from the atmospheric moisture in Folegandros Island. Specifically:

- Installation of four (4) panels on the roof of a concrete shed at the port of Folegandros Island.
  - The panels at the port should be accompanied and connected to a water cooler for cold water to be offered to the tourists and residents.
  - The panels should be accompanied by a mobile device and an HDMI cable for connection to a screen.

- Installation of four (4) panels will be installed on the room of the Municipality building of Folegandros Island.
  - The panels at the municipality building should be connected to an existing water cooler.

- The systems should be ready for operation.

- Delivery of the final drawings of the installation arrays and the hydraulic connection.

2.6. Reporting line

The contractor will work under the direct supervision of / and communicate directly with Dr. Nikolaos Skondras, GWP-Med Senior Programme Officer, who is serving as Project Coordinator for Technical Solutions. When not present, the contractor will be supervised by related technical personnel assigned by the municipality of Folegandros.
The Mayor of Folegandros might be present during the installation phase. She should have direct access to the project details.

3. Duration of the Contract

The assignment has to be completed by the 25th of June 2022.

4. Contract Price and Schedule of Payments

The maximum fee for this assignment is **33,000 EUR***. This amount includes all other costs, income taxes and any other amount payable or cost that may be required for the completion of the work/service, **including VAT**.

The schedule of payments is as follows:
- 100% payment upon satisfactory completion of the works.

5. Guarantee

The Successful Contractor will provide a Guarantee on all equipment for a minimum period of 16 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.).

6. Selection Criteria (Pass / Fail)

Successful participants must:

1. Provide a statement of adequate resources to perform the requested tasks
2. Provide a Graphic Works Schedule - Program of Works in the form of a Gantt Chart
3. Provide the datasheet of the offered equipment.
4. Provide a draft design of the roof mounting of the equipment (for the shed and the Town Hall)

5. Have Minimum ten (10) years of experience in related hydraulic and electrical installations.
6. Have Minimum one (1) assignment of similar nature (installation of pumps), complexity and/or budget with the present one in the last five (5) years.

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 technical requirements as described in the present document.

ANNEX

Picture 1. The shed at the port (1)

Picture 2. The shed at the port (2)

Picture 3. The location of the shed at the port

Figure 4. The electrical board near the shed at the port

Figure 5. The internal components of the electrical board.

Figure 6. Indicative picture of the water cooler to be supplied and connected.

Picture 4. The municipality building

Picture 5. The roof of the municipality building