



24th August 2018

REFERENCE NUMBER: MGOZ/MPU/ T 26/2018

TENDER FOR THE SUPPLY AND DELIVERY OF WASTE BINS AND SMART SENSORS AS WELL AS THE PLATFORM FOR SENSOR DEVICE CONNECTIVITY IN CONNECTION WITH THE CONSUME-LESS PROJECT FUNDED THROUGH THE INTERREG MED PROGRAMME 2014- 2010

Clarification/Notification No. 8

Reference is made to the above-tender, for which the submission of offers is being extended by **Friday, 31st August 2018 at 09:30am.**

The Contracting Authority also wishes to clarify the following queries raised by economic operators for LOT 1 -Supply and Delivery of Waste Bins:

1. Kindly clarify capacity of each bin. In d) there is a reference to 95-105 ltrs , whereas in b0 there is a reference to capacity of 260-290 ltrs. Please clarify.
 - **As specified in tender document each bin liner capacity is to be between 95 to 105 litres whereas the total bin capacity is to be between 260 to 290 litres. Bin capacity is therefore larger than the combined bin liner capacity for obvious reasons.**
2. Are the sensors required on both sides of the bin, i.e on the bin for recycling and on the side for the mixed waste? Likewise is the fire suppression device required on both sides of the bin?

If the doors have a complete hinge and not a 'three strong latch points' will this be acceptable?
Will galvanised steel liners be accepted?

- **Sensors will be procured through Lot 2 of the tender document. The number of sensors that will be installed in the bins by the Contracting Authority is at the discretion of the same authority.**
- **As long as there is enough space left in the bin for the installation and proper functioning of the sensors and as long as the operational functionality as described in Clarification Note/Letter No 7 [or Clarification number 15] is achieved, the number of such devices will not be an issue.**
- **Hinges and latch points are completely different things. Three strong latch points refer to the locking mechanism of the doors that give access to the bin liners. Any kind of hinges are acceptable as long as there is the three strong latch points locking mechanism.**
- **Only liners that meet the specifications of the tender document will be accepted. Galvanised steel liners are not acceptable.**

Moreover, the Contracting Authority also wishes to clarify the following queries raised by economic operators for LOT 2 - Waste Management Sensors and Platform for connectivity and servicing Specifications:

a) Smart Device – Sensor to be installed in the bins

- LPWA compliant;

CB Comments: This is extremely broad and includes at least 5 common communication standards (<https://en.wikipedia.org/wiki/LPWAN>). It is economically not feasible to offer a sensor that supports all of them and though technically it will be a compliant offer to support even one of them, the sensors will be useless if this standard is not available in Gozo as clearly the bidder will not build also the network for the devices to communicate.

CB Questions: Which particular communication standard/protocol (e.g. LoRa, NB-IOT, Sigfox, etc.) the Contracting authority will use and with which particular specification?

ANSWER: All LPWA compliant communication standards will be accepted.

- A minimum of 5 years of battery life;

CB Comments: While each and every producer claims such battery life, there is no reasonable way to prove the battery life. Furthermore, this contradicts with the requirement for changeable batteries.

- Minimum IP67 rating;

CB Comments: this is rated by enclosure manufacturers as "IP 67 Enclosures - IP rated as "dust tight" and protected against immersion.". Another source states: "IP67 means the unit can be dropped into a body of water up to a meter deep for half an hour". It is over-restrictive requirement not fit for the intended use.

While such sensors are available, they are intended for demanding industrial use and come at a very high cost (typically over 100 USD/unit)

- Changeable batteries with standard AA/AAA batteries;

CB Comments: given the low price at which these come, we do not see the need for 5 years battery life above. Our currently available device runs on rechargeable batteries of a different form factor. The compact version's development that runs on AAs will be available in several weeks.

- Integrated antenna with connection option for external antenna;

CB Comments: we do that, but it immediately affects the IP67 rating, as the antenna connector has to be IP67 as well, which affects cost.

- Ultrasonic technology with dual sensor;

CB Comments: here it is not clear whether the dual sensor is for one monitored compartment or for the two integrated bins (i.e. in one installation are there 2 or 4 sensors). Currently we measure each compartment with a single ultrasonic sensor. Very few of the suppliers worldwide use 2 ultrasonics to measure one compartment.

CB Questions: Is the dual sensor for each measuring point / measured compartment (i.e. 4 sensors in total per unit) or for the whole unit (i.e. 2 sensors per unit, one for each monitored compartment)

ANSWER: In line to the technical specifications, only one sensing device in each compartment using dual sensor technology is being requested.

- Range of sensor: 2 cm – 400 cm and must be configurable;

CB Comments: the 2 cm range is over-restrictive and does not support the goal of the tender. If the waste is at 2 cm from the sensor, practically the bin is overflowing.

- Integrated Temperature Sensor (>7 °C/min)

CB Questions: Does >7 °C/min means "being able to detect a temperature increase of more than 7 degrees Celsius per minute"?

ANSWER: Yes, statement confirmed.

- Integrated inclinometer with >45° overturning detector

CB Comments: inclinometer is only one of the ways to measure that. We use accelerometer which can as successful detect tilt. Again over restrictive, unless "inclinometer" refers to any type of sensor that can measure tilt.

- Integrated tilt correction system

CB Comments: not clear - is the sensor device expected to put the bin in an upright position or to compensate for a bin installed on a surface that is not horizontal

CB Questions: This requirement is not clear - please specify is the sensor device expected to put the bin in an upright position (if tilted) or to only compensate for a bin installed on a surface that is not horizontal (i.e. not provide for a false alarm, if the bin is tilted with less than 45 degrees)

ANSWER: Latter statement confirmed, i.e. to only compensate for a bin installed on a surface that is not horizontal.

- Standard notifications and alarm for:
- Bin emptying (opening/closing of lid);

CB Comments: restrictive. Detection of emptying can be done with other algorithms. The opening of the door/lid is not a guarantee that it was emptied

- Obstruction;

CB Comments: not clear if this equals vandalization?

CB Questions: What is the definition of "obstruction" for this use case - maybe a vandalization of some kind? If yes, a more detailed definition is needed - knocking over the bin, hitting it with certain strength and frequency, etc.

ANSWER: Not only vandalization. Obstruction can occur for example in instances where a large object is inserted in the bin

• Sensor to be installed in bin must not exceed the following measurements in size: 150x130x50mm; CB Comments: Is it mandatory?

ANSWER: Dimensions are confirmed as per tender document.

CB Questions: How long shall buffering be, how often data shall be transmitted, which data shall be buffered?

ANSWER: There is no predefined period of how often data shall be transmitted

• Transmission time synchronization via NTP Server;

CB Questions: Will any NTP server do or a specific one is to be used? If a specific one, is access guaranteed to it by the Contracting authority?

ANSWER: Yes, any NTP server is acceptable in line to the tender specifications and there is no specific NTP server defined by the contracting authority.

b) The Platform for connectivity with sensors

• Flexibility of creating groups or tags based on specific criteria;

CB Questions: What are the specific criteria? What is grouped/tagged - bins, sensors?

ANSWER: As per tender specifications, there is no specific criteria on grouping or tagging. This remains within the discretion of the Contracting Authority.

• Complete register of all data collected by the devices;

CB Questions: What retention period for the data? What frequency of measurements? Which parameters/measurements of the bins?

ANSWER: The retention period for the data will be according to the Contracting Authority's data retention policy. All data gathered from the bins must be saved.

• Security and user profiles with different access levels;

CB Questions: What / How many access levels are needed?

ANSWER: This cannot be defined at this stage but the Contracting Authority will be able to decide this when the bins are distributed at different locations/areas.

- Dynamic information display (configurable filters and thresholds);

CB Questions: How this differs from the dashboard above?

ANSWER: Not different. Contracting Authority requires a dynamic information display – easy to read

- Integration to 3rd party platform – like mobile app - if required;

CB Questions: Which one, with what protocols and functionality? When it will be clear if it is required?

ANSWER: This cannot be disclosed at this stage due to dependency on the system to be offered.

- Not limited to the mentioned devices related to waste management but other smart devices can also be easily integrated in the future.

CB Questions: What type of ones? Which which functionality? What is easy - how this is measured?

ANSWER: Contracting Authority is requesting a system that supports other smart devices

c) The Service

- Contractor shall supply technical support both for sensors and platform on location in less than 24 hours;

- Contractor shall maintain sensors and platform operational and fully functional for a minimum period of 5 years (this includes battery replacement of sensors if necessary);

CB Questions: Why then 5 years battery life is required?

ANSWER: Specifications and requisite on the 5 years battery life is confirmed.

- Contractor shall stock extra sensor devices locally in case of quick device replacement;

CB Questions: How many?

ANSWER: To be coordinated on award of tender.

- Project rollout should be within an additional 5 weeks from the delivery of the sensors;

CB Questions: What is the project scope and what is included in the roll-out? When are the sensors expected to be delivered?

ANSWER: Project rollout should be within an additional 5 weeks from the delivery of the sensors. During the five weeks period sensors will be installed in the bins in the different locations across the island of Gozo.

- Service must cover communication, platform, installation and support for a 5-year period;

CB Questions: Communication covers what - sensor to server communication? The installation covers what - platform installation or also sensors installation? Support includes what (e.g. is sensor configuration part of it)?

Answer: As per tender specifications, service is to cover:

- a) Sensor to server communication**
- b) Platform installation and sensors**
- c) Sensor configuration and support on both sensors and system for a five-year period**

With reference to various comments raised hereunder by an economic operator, the Contracting Authority confirms the published specifications.

All other tender documents, conditions and requirements, which are not superseded by this Clarification, remain in place.
