

## Terms of Reference

### Hospital/clinical waste management Project for Selected Pacific Island Countries

This APW is requested by:

Unit:	Pacific Climate Change and the Environment (PCE)
Division:	Division of Pacific Technical Support (DPS)

#### 1. Purpose of the Consultancy

The objective of this work is to seek for interested parties to submit a technical and financial proposals for the installation, commissioning and start-operating a final medical waste treatment and disposal unit in the following pacific island countries:

1. 1 unit in the Federated States of Micronesia (FSM);
2. 1 unit in the Kiribati.
3. 1 unit in Fiji
4. 1 unit in Solomon Islands
5. 1 unit in Vanuatu
6. 1 unit in Tonga.
7. 1 unit for Papua New Guinea

*Note – the final decision on the countries will be made after confirmation of official request of the assistance needed by their respective Ministries of Health and the final date of the deliverable of the technologies to these countries.*

The proposed final medical waste treatment and disposal system or technology should meet the following criteria:

- (1) alternative technologies to incineration or any other non-burning system;
- (2) a technology with previous proven evidence in terms of its reliability and efficiency and verified by at least one independent evaluator or laboratory that the system or technology proposed can effectively decontaminate or make the waste inert, free from any contamination or pathogen and safe for final disposal of the residues to the ground;
- (3) a proven technology in terms of its operation as safe, sustainable, long lasting and verified independently by at least three (3) past users of the technology or systems as safe and easy to operate and maintain;
- (4) to provide proper training, commissioning and to run the systems or technology together with the local staff of the Ministry of Health of the selected Pacific Island Countries listed above for a minimal period of one year, to which any operational failure and broken parts of the technology to be replaced by the providers with no additional costs;
- (5) to assist the Ministry of Health of the selected countries listed above to submit quarterly reports to higher management of their Ministries of the technology performance and environmental reports.

## 2. Background

COVID-19 brings urgency to the need for safe management of medical waste.

Medical waste which is also called health care waste or clinical waste refers to any waste generated by health care facilities and in the context of COVID19, they are also generated from vaccine centres, quarantine isolation facilities which constitutes (a) sharp wastes; (2) infectious waste – waste suspected to contain pathogens and poses a risk of diseases transmission; (3) pathological waste including human tissue, organs or fluids or blood; (4) pharmaceutical waste; (5) chemical waste and (6) a small amount of cytotoxic waste and radioactive waste.

All medical waste produced from the health care facilities, particularly during the care of COVID-19 patients and contacts, must be segregated, stored and collected safely in designated containers and bags, treated and disposed of safely through an appropriate waste disposal system.

Overall, the management of medical waste are inadequate across the Pacific Island Countries and areas (PICs), and the most urgent need is to have safe and reliable final disposal systems.

The most common disposal system that is used in the PICs for the final treatment/disposal of medical waste is incinerator. In incineration, the waste is burnt into smaller volume and the by-products are ash residue and emissions from burning in the forms of gases such as carbon dioxide and other gases and some are highly toxic such as dioxins and furans. Most PICs used small size incinerators and are facing many problems – many are no longer functioning, their operating costs are high and the hazards from the emissions can be significant. Besides, incineration is not a climate change friendly system.

The way forward is to treat the medical waste using non-burning systems. The proposed work is to call for interested parties to submit a technical and financial proposal for the installation, commissioning and start operation of a non-burning technology for the final disposal of medical waste in selected PICs listed above.

### 3. Planned timelines (subject to confirmation)

- Start date: 21/06/2021
- End date: 24/12/2021

### 4. Work to be performed

To seek for interested parties to submit a technical and financial proposals for the installation, commissioning and start-operating a final medical waste treatment and disposal and described as follows:

**4.1** Title of work: Installation, Commissioning and Start-Operate for a specific of time of one unit of medical waste treatment and disposal system or technology in the following PICs:

1. Federated States of Micronesia (FSM);
2. Kiribati.
3. Fiji

4. Solomon Islands
5. Vanuatu
6. Tonga.
7. Papua New Guinea

#### **4.2 Technical Specifications:**

1. a treatment and disposal technology for health care waste produced in the above PICs with the capacity as follows:
  - (1) Smaller capacity of around 50 kilograms per day for (1) FSM; (2) Kiribati; and (3) Tonga
  - (2) Bigger capacity of around 1-1.5 tonnes per day (1) Fiji; (2) Solomon Islands and (3) Papua New Guinea.
2. the technology shall treat the following, but not limited to, the following waste which is generated from the healthcare establishments in the selected PICs
  - (1) Sharp waste – hypodermic, intravenous or other needles; syringes; infusion sets; scarpels; pipettes; knives; blades; and broken glass;
  - (2) Infectious waste – waste contaminated with blood and other body fluids; laboratory cultures and microbiological stocks; and waste which has human excreta and other materials that have been in contact with patients with highly infectious diseases in isolation wards;
  - (3) Pathological waste – human tissues; organs or body fluids; unused blood products;
  - (4) Pharmaceutical waste – pharmaceuticals that are expired or non-longer needed; items contaminated by or containing pharmaceuticals;
  - (5) Chemical waste – waste containing chemical substances from laboratories.
3. the technology proposed shall not be a burning technology such as an incineration process or any technology which uses water in its treatment process and does not produce waste water;
4. a technology with previous proven evidence and verified by at least one independent evaluator or laboratory that the system proposed can effectively decontaminate or make the waste inert, free from any contamination or pathogen and safe for final disposal of the waste residues to the ground;
5. The submission must include the following:
  - (1) All the essential equipment of the systems including, but not limited to the following items:

- Major parts or components such as feeding systems; shredding (if used); main treatment systems; and final output systems;
- Cooling systems
- UPS systems

- (2) All auxiliary or secondary components needed for safe and efficient operation of the proposed systems/technology

1.2 Successful supplier shall be responsible for the following, but not limited, to the following items:

- (1) installation of the proposed systems or technology at a designated site to be determined by the Ministry of Health of the selected pacific island countries
- (2) to provide the specifications for construction of the housing unit and related electricity requirements for the installation of this waste management equipment in coordination with the Government of the selected pacific island countries and specified contractor.
- (3) commissioning of the proposed systems or technology to ensure the safe and efficient operation of the systems or technology for a period of 40 days;
- (4) to propose a minimal quantity of essential parts or components to be purchased as a back-up systems of the systems or technology for the period of at least 2 years of its operation.
- (5) to undertake proper training, commissioning and to run the systems together with local staff of the Ministry of Health of selected pacific island countries for a minimal period of one year, to which any operational failure and broken parts of the technology to be replaced by the providers with no additional costs within 2 years from the period of its operation.

#### **4.1 Method(s) to carry out the activity**

Interested bidders are requested to submit a detailed proposal which constitute the above technical specification as well as detailed financial proposal with breakdown of costs for the following items:

- (1) Supply of appropriate equipment for installation of a medical waste management unit/plant
- (2) Installation and commissioning of the plant / unit
- (3) Training on running, maintenances and repair of the unit/plant
- (4) Supply of spare parts

Note – all works must be completed by the end of 2021.

## 5. Technical Supervision

The selected contractor will work on the supervision of:

Responsible Officer:	Maraia Meo, Technical Officer, Water Sanitation and EH, DPS, PCE	Email:	meoma@who.int
Manager:	Nasir Hassan, EH Specialist, DPS, PCE	Email:	hassanm@who.int

## 6. Specific requirements

### - Qualifications

- **Essential:** Interested bidders must have a license from the national authority to install and operate waste management plants
- **Desirable:** a license from the national authority to install and operate a medical waste management plant.

### - Experience

- **Essential:** had experience in the installation of the proposed systems or technology in at least 3 units in the past five years with at least in two developing countries
- **Desirable:** a certificate of appreciation from an accredited agency

### - Technical Skills and Knowledge

- Had at least 5 years of experience in the supply, installation and operation of a medical waste management systems or technologies with at least in two developing countries

### - Language requirements:

- Fluent in English (Read - Write - Speak)

## 7. Competencies

- Producing results
- Communicating clearly and reliably
- Working as a team member

## 8. Place of assignment

The contractor is expected to perform work remotely through virtual communications with relevant stakeholders in the selected countries and if borders are open can visit the selected countries to undertake training etc within the period of contract.

## 9. Medical clearance

The selected contractor is not required a medical certificate of fitness for work.

## **10. Travel**

The contractor is expected to perform work remotely through virtual communications with relevant stakeholders in the selected countries and if borders are open can visit the selected countries to undertake training etc within the period of contract however this depends on approval by the national government of the selected pacific island countries .

## **11. Payment Schedule**

- Signing of contract – **10%**
  
- Supply of appropriate equipment for installation of a medical waste management unit/plant and Installation and commissioning of the plant / unit – **50%**
  
- Completion of the Implementation of all activities;
  - propose a minimal quantity of essential parts or components to be purchased as a back-up system of the systems or technology for the period of at least 2 years of its operation
  - undertaking proper training Training – **40%**