

**TERMS OF REFERENCE**  
**Project number: TFROM02001**

**Supply of equipment to phase-out methyl bromide in horticulture sector in Romania**

## **1. GENERAL INFORMATION**

These terms of reference shall be used for the preparation of bids for the supply of the following equipment required to phase-out the methyl bromide consumed by horticultural sector using Metham sodium:

- **N 10 PROPORTIONAL LIQUID DISPENSERS (VENTURI) FOR METHAM SODIUM INJECTION.**
- **75,000 m INTEGRAL DRIPPERLINE PLUS ACCESSORIES.**

To be delivered to one place in Romania according to the specifications described later.

Overseas suppliers shall deliver DDU to the places described later. The Contractor shall be responsible for costs, fees and charges in respect of the export and transit of the material and technical documentation, but not for customs duties, taxes or license fees in the Project Area, which are the responsibility of the Project Counterpart. The Contractor shall also obtain, at his own risk and expense, any export license or other governmental authorization(s) necessary for the export of the material and technical documentation. The Government of Romania will authorize a free customs clearance.

## **2. THE PROJECT**

The project aim is to phase out the 156.5 tones of methyl bromide (MB) used by 10 farmers treating 220 hectares of heated greenhouses. The crops involved are tomatoes, cucumber and pepper. The alternatives chosen are Metham sodium, applied alone or combined with soil solarization depending from the season, and Grafting, which have been proven effective by demonstration projects in other countries. These technologies are non-transitional, increasingly used in Article (2) countries, and are seen as the most technically and economically feasible in Romania.

The implementation of the project will cover a time of four years. Due to the disbursement in tranche, decided by the donor country, the present TOR concerns the first of four years project implementation.

## **3. SCOPE OF SUPPLY**

For the purpose of implementing the phase-out project, the Contractor shall supply to the Horting Institute described later, the following:

- **TEN (10) UNIT PROPORTIONAL LIQUID DISPENSER (VENTURI) FOR METHAM SODIUM INJECTION, ACCORDING TO THE FOLLOWING SPECIFICATIONS:**

### **Technical data:**

- Flow rate main line: 8÷15 m<sup>3</sup>/h.
- Injection rate: ranging from 0.5% to 2,5% volume/volume.

- Resistant to a pressure of 10 atm (PN10).
- Inlet pressure 1.8÷3.0 atm.
- Outlet pressure 1.5÷2.0 atm

**Accessories:**

- Disk filter (200 mesh) positioned before Venturi System.
- Mechanical water counter on the main pipeline
- Anti back flushing valve on the main pipeline.
- (Venturi).
- Metham sodium flow meter plus valve, on the venturi suction pipe.
- Anti back flushing valve, on the venturi suction pipe, to avoid water back flushing into the metham sodium tank
- Screen filter (as mixer) or similar mixing system, on the main pipeline.

**Description:**

- The proportional liquid dispenser must be firmly connected to a trolley and ready for the suction.
- The proportional liquid dispenser must be equipped of all accessories for the easy connection with the main pipelines, inlet and outlet.
- No PVC, brass, copper, zinc, bronze parts in any parts of proportional liquid dispenser as well as on the accessories.

**→ 75,000 m, INTEGRAL DRIPPER LINE PLUS ACCESSORIES, ACCORDING TO THE FOLLOWING SPECIFICATIONS:**

**Technical data:**

- Dripper flow rate: 1.6÷2.0 l/h.
- Working pressure: 0.7÷4 atm.
- Drippelines wall thickness: 1÷1.2 mm.
- Diameter: 16 mm.
- Dripper spacing: 3.3 drippers per meter.
- Non auto-compensate pressure.
- Maximum variation of emitter flow rate comparing the 1<sup>st</sup> and the last water emitter along the drip line: < 10% (max 50 m).
- Ensure to be in working condition for a period of 24 months under greenhouse environment.

**Description of the plot and dripper irrigation plant:**

- Plot:
  - Dimensions: 72 m long (main pipe line) and 35 m wide (dripping line).
  - N° of plots: 20
- Main pipeline:
  - Diameter: 75 mm.
  - Polyethylene PN4 low density or Lay-flat.
  - Junction to the dripping line: 1.5/meter, provided of 3/8" valve.
  - Equipped of all accessories to be in working conditions and for the easy connection with the proportional liquid dispenser.

**4. DELIVERY SCHEDULE AND DELIVERY SITES**

The contractor shall deliver the equipment in one solution by September 21, 2002

The supplies shall be delivered to the Horting Institute (Institutul de Cercetare-Dezvoltare Pentru Industrializarea si Marketingul Produselor Horticole).

Address: Intrarea Binelui, 1A, 78614 – Bucharest - Romania  
Phone: (40) 01 46 10 706; Fax (40) 01 330 36 85

## **5. CONTRACTOR'S GENERAL RESPONSIBILITIES**

5.1 The contractor shall assume overall responsibility for the quality and timeless supply of the equipment and services related to this contract.

5.2 The contractor shall arrange for transportation and insurance of the materials and bear all costs risks thereof

5.3 The contractor shall be responsible for applying best international procedures, including safety aspects in the equipment supplied

5.4 The contractor is responsible for securing that all equipment supplied is new.

5.5 The contractor shall be responsible for the control of all the work, services and supplies that might be executed by local subcontractors.

5.6 The contractor shall be responsible for the quality and completeness of its technical services.

5.7 The contractor shall be responsible for the insurance and social benefits, if any, of all the contractor's personnel, if any, working in Macedonia.

## **6. TERMS OF GUARANTEES**

The contractor shall guarantee the quality and completeness of its work, equipment, supplies and its compliance with the specifications described in paragraph 3 above.

UNIDO will keep the right to carryout quality tests. In case of non-compliance with the aforementioned specifications, UNIDO will stop the payments and return the equipments to the supplier at its own expenses

## **7. LANGUAGE OF THE PROPOSALS**

All proposals shall be written in English.

## **8. CURRENCY OF THE PROPOSALS**

All proposals shall be quoted in United States dollars and the contract will be awarded in this currency. Proposals in other currencies will automatically be disqualified.

## **9. INSTITUTIONS CERTIFYING QUALITY AND DELIVERY**

For payment purposes, the contractor shall request Institutul de Cercetare-Dezvoltare Pentru Industrializarea si Marketingul Produselor Horticole – Buchares - Romania to issue a statement certifying the number of equipment delivered and its quality. The Institutul de Cercetare-Dezvoltare Pentru Industrializarea si Marketingul Produselor Horticole shall mail the original of this statement to UNIDO. The contractor shall attach a copy to the bill.

UNIDO will keep the right to verify the exactitude of the delivery and quality certificates issued by the Institutul de Cercetare-Dezvoltare Pentru Industrializarea Si Marketingul produselor Horticole – Bucharest – Romania.

## **10. SHIPMENT DOCUMENTS (FOREIGN FIRMS)**

In order to avoid unnecessary delays and demurrage costs at the border, firms from countries other than Romania, **shall confirm** in the proposal their commitment to provide to UNIDO, **two weeks** before dispatching any shipment, the following documents:

- ➔ Three original invoices and its translation into English
- ➔ One certificate of origin and its translation into English
- ➔ Three originals of the shipment documents
- ➔ One original packing list in English

## **11. PAYMENT**

Payments will be against shipping documents according to UNIDO rules and regulations and subject to clearance concerning quantities and quality by the Institutul de Cercetare-Dezvoltare Pentru Industrializarea si Marketingul Produselor Horticole – Bucharest - Romania.