

No.KAICO/HO/Tech/STP/Njaraneeli/TVM/2017-18 (II)

Dated: 30.05.2018

To

Shri. ....  
Empanel Contractor

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Sir,

Sub:- Tender Schedule in respect of the Project of Providing 80 KLD Sewage Treatment Plant –Supply and Providing Electromechanical Equipments, Ultra Filtration Plant and Organic Waste Converter Plant at Njaraneeli in 7 Acre land in Trivandrum (Dist) under ST department

This is to inform that the second phase of the Project of providing 80 KLD Sewage Treatment Plant, includes Supplying and Erecting Electromechanical Equipments, Ultra Filtration Plant and Organic Waste Converter at Njaraneeli in 7 Acre land in Trivandrum (Dist) to be arranged with immediate effect and to be completed within the minimum time. The electromechanical work and civil works etc are to be completed simultaneously for proper completion of project. The details of Electromechanical Equipments, Ultra Filtration Plants and Organic Waste Converter Plant and details of works with schedules etc has been published in our website [www.keralaagro.com](http://www.keralaagro.com) Please download the schedule of all equipments and including erection charges from our website, quote your rate and the same may be submitted to this Office on or before 11.06.2018 at 4.00PM. The documents should be covered with sealed cover only and the same will be opened on 11.06.2018 at 4.30 PM in the presence of available contractors. An amount of Rs. 2500/- + 15% GST ie Rs. 2875 (Rupees Five thousand eight hundred and seventy five only) to be remitted towards cost of tender schedule. The substructure of civil work almost completed. The erection of Electromechanical works to be completed simultaneously along with balance civil work of the plant.

The tender covers two parts ie, 1<sup>st</sup> and 2<sup>nd</sup> part respectively. 1<sup>st</sup> part contains technical bids and 2<sup>nd</sup> part includes Financial bids.

Technical bids:- It includes the following

1. Experience certificate should be produced in the similar work with relevant documents.
2. Copies of turnover of last three financial years.
3. Details of similar type of Project under taken.
4. Technical and financial bid should be submitted on separate sealed cover.

Those who have achieved the Technical score will be opened for Financial evaluation.

In this connection we also bring your notice that the details of plans and all other details of work etc can be obtained from KAICO, Head Office, Thiruvananthapuram from 31.05.2018 to 11.06.2018 on office time between 10 AM to 5 PM.

Thanking You,

Yours faithfully,  
For THE KERALA AGRO INDUSTRIES CORPORATION LIMITED,

MANAGING DIRECTOR

## ELECTROMECHANICAL EQUIPMENTS IN CONNECTION WITH CONSTRUCTION OF 80 KLD SEWAGE TREATMENT PLANT

### A. DETAILS AND SPECIFICATIONS OF ELECTRO MECHANICAL EQUIPMENTS

S.NO	Description	
1	<b>BAR SCREEN</b>	
	Qty	1 no
	MOC	MS
	Make	ENVIRO CARE INDIA PVT LTD/Equivalent make
2	<b>SEWAGE TRANSFER PUMP</b>	
	Qty	1 no
	Type	Centrifugal, horizontal
	Capacity	4.0 m <sup>3</sup> /hr
	Head	12 mts
	MOC	CI
	Make	KIRLOSKAR /Equivalent make
3	<b>SLUDGE TRANSFER PUMP</b>	
	Qty	1 no
	Type	Centrifugal, Horizontal
	Capacity	0.5 m <sup>3</sup> /hr
	Head	12 mts
	MOC	CI
	Make	KIRLOSKAR /Equivalent make
4	<b>AIR BLOWER FOR AERATION TANK</b>	
	Qty	1 no
	Type	Twin lobe
	Capacity	80 m <sup>3</sup> /hr

	Pressure	0.30 kg/Sq.cm
	Make	INGERSON ROLL / equal
	Motor	5.0 HP/1440 RPM
	Make	KIRLOSKAR /Equivalent make
<b>5</b>	<b>PIPE LINE ARRANGEMENTS FOR AERATION</b>	
	Qty	1 Lot
	MOC	PVC & MS
	Make	FINOLEX /SUPREME /Equivalent Type
<b>6</b>	<b>FAB MEDIA</b>	
	Qty	1 lot
	MOC	PP
	Sp. Gravity	0.9
	Shape	Cylindrical
	Size	22 mm Dia X 15 mm Height
	Thickness	1 mm
	Surface area	350 m <sup>2</sup> /m <sup>3</sup>
	<b>Color</b>	black
	<b>Make</b>	Tecpro /Equivalent Type
<b>7</b>	<b>Stilling well</b>	
	Qty	1 NO
	MOC	MS
	Make	ENVIRO CARE INDIA PVT LTD/Equivalent Type
<b>8</b>	<b>Filter feed pump</b>	
	Qty	1 no
	Capacity	4.0 m <sup>3</sup> /hr
	Type	Horizontal Centrifugal

	Pump MOC	CI
	Pump make	KIRLOSKAR /Equivalent Type
9	<b>Dual Media filter</b>	
	Flow	4.0 m <sup>3</sup> /hr
	Operating pressure	3 – 5 kg/sq.cm.
	Vessel Type	Vertical cylindrical
	MOC of vessel	FRP
	Frontal piping	One set
	Back Wash facility	Included
	Filtration Media	Sand , Carbon & Pebbles
	Pressure gauge	1 no
	Make	Pentair/Equivalent Type
10	<b>UV system</b>	
	Qty	1 no
	Capacity	4.0 m <sup>3</sup> /hr
	MOC	SS 304
	Lamp make	LIGHT SOURCE /Equivalent Type
11	<b>Plumbing works (as per our supplied Equipments)</b>	
	Qty	1 lot
	MOC	UPVC
	Make	FINOLEX /Supreme/ Equivalent Type
12	<b>Electrical panel with accessories</b>	
	Qty	1 no
	Make	L&T / ABB / SIEMENS

**COST ANALYSIS OF ELECTROMECHANICAL EQUIPMENT AND ERECTION CHARGES FOR CONSTRUCTION OF 80KLD SEWAGE TREATMENT PLANT**

<b>S.No.</b>	<b>Description</b>	<b>Total Cost in Rs. (to be quoted)</b>
1	Mechanical Equipments for STP-80 KLD- 1 Unit	
2	Erection and Commissioning Charges	
<b>Total</b>		
<b>(Total Amount should be quoted in figures and words)</b>		

# DETAILS OF ULTRA FILTRATION PLANT IN CONNECTION WITH THE CONSTRUCTION OF 80KLD SEWAGE TREATMENT PLANT

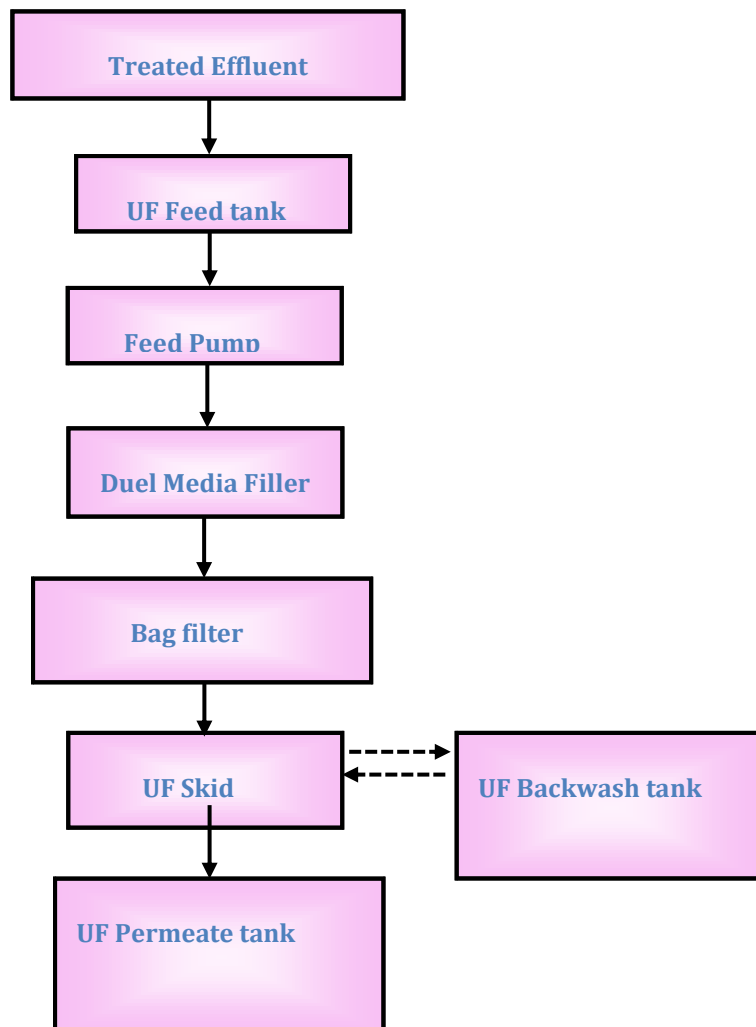
## ULTRAFILTRATION PLANT

### DESIGN DETAILS:

#### PLANT CAPACITY

The UF plant is designed to treat 100 m<sup>3</sup>/day of effluent. The plant is designed to operate 10 hrs at a flow rate of 10 m<sup>3</sup>/hr.

### **TREATMENT FLOW SCHEME**



**UF - Operation hours (20 hours)\***

## A. DETAILS AND SPECIFICATIONS OF ULTRA FILTRATION PLANT

S.NO	Description and Specifications	
1	<b>UF Feed pump</b>	
	Qty	1 no
	Type	Centrifugal, Horizontal
	Capacity	2.0 m3/hr
	Head	30 MWC
	MOC	CI
	Make	Kirloskar / Equivalent type
2	<b>BAG FILTER</b>	
	Quantity offered	2 nos
	Flow rate	2.0 m3/hr
	Micron size	25-50 micron
	MOC of bags	PP
	MOC of Housing	PP
3	<b>UF CEB - hypo chlorite, HCL &amp; NAOH DOSING SYSTEM</b>	
	Quantity offered	3nos
	Capacity	0 - 5 lph
	Pressure	4 Kg/cm2
	Make	FOCUS/ Equivalent type
	Dosing tank capacity	100 Ltrs
	MOC	HDPE



<b>4</b>	<b>ULTRA FILTRATION SYSTEM</b>	
	Quantity offered	1 no
	Total no of elements	1 no
	Total area of membrane	50 sqm
	Net filtrate	2.0 cum/hr
	Make of elements	Hiflux /Team / Equivalent type
	MOC of interconnecting piping	UPVC
<b>5</b>	<b>UF BACKWASH/FAST FLUSH PUMP</b>	
	Quantity offered	1 no
	Type	Centrifugal Mono block
	Flow rate	6.0 cum/hr
	Head	20 mwc
	Make	Grundfos / Equivalent type
<b>6</b>	<b>PRESSURE SWITCHES</b>	
	Quantity offered	1 no
	Make	Danfoss/ Equivalent type
<b>7</b>	<b>FLOW METER</b>	
	Quantity offered	1 No
	Type	Rota meter
<b>8</b>	<b>UF SKID</b>	
	Quantity	1 No
	MOC of skid	MS powder quoted
<b>9</b>	<b>UF Electrical Panel</b>	

	Valves	Butterfly valves – Pneumatically
	Make	ABB / Siemens / Equivalent type

### **Cost Analysis of Ultrafiltration plant**

S.No.	Description	Cost in Rs. (To be quoted)
1	Mechanical Equipments for UF-40 KLD	
<b>(Total amount should be quoted in figures and words)</b>		

#### TERMS & CONDITIONS

**TAX:**

Exclusive of all taxes.

**VALIDITY:**

The offer is valid for 15 days from date.

**DELIVERY:**

We shall deliver the equipment within 4 - 6 weeks from the date of receipt of technically and commercially clear purchase order along with requisite advance.

**GUARANTEE/WARRANTEE:**

The equipment supplied is guaranteed for a period of 12 months from the date of supply against manufacturing defect.

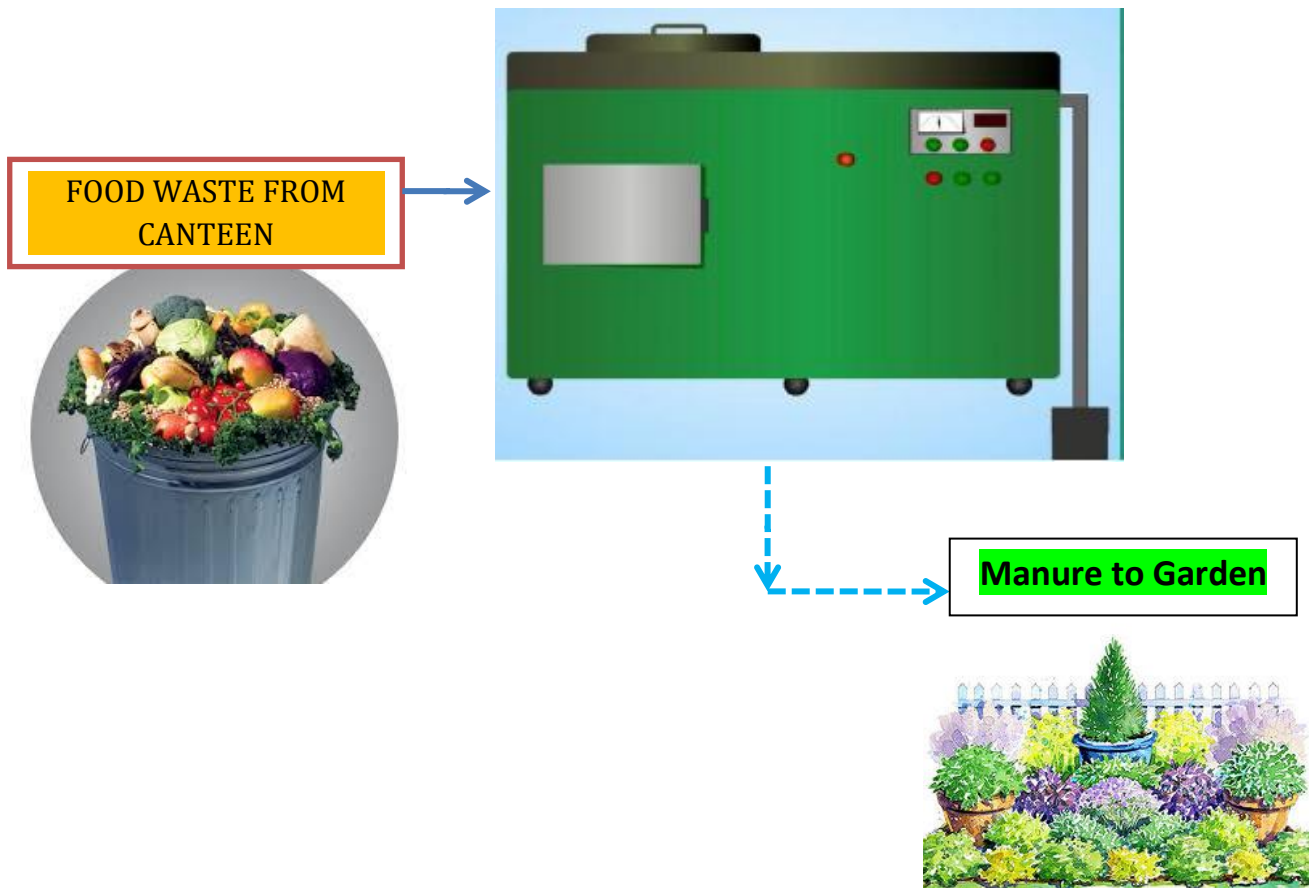
**DESIGN DETAILS OF ORGANIC WASTE CONVERTER IN CONNECTION WITH THE  
CONSTRUCTION OF 80KLD SEWAGE TREATMENT PLANT**

**ANNEXURE I**

**PLANT DESCRIPTION:**

Wastage Management Plant Capacity	75 Kg Food waste / day
Compost generation	10-15 Kg /day

**ANNEXURE II**  
**FLOW DIAGRAM:**



## **Process Description:**

Composting is the natural process of decomposition and recycling of organic material into a humus rich soil amendment known as compost. For any business or institution producing food waste, this organic material can be easily decomposed into high quality compost.

Fruits, vegetables, dairy products, grains, bread, unbleached paper napkins, coffee filters, eggshells, meats and newspaper can be composted. If it can be eaten or grown in a field or garden, it can be composted. Items that cannot be composted include plastics, grease, glass, and metals -- including plastic utensils, condiment packages, plastic wrap, plastic bags, foil, silverware, drinking straws, bottles, polystyrene or chemicals. Items such as red meat, bones and small amounts of paper are acceptable, but they take longer to decompose. Add red meat and bones to only a well-controlled compost pile to avoid attracting vermin, pests and insects to partially decomposed meat scraps.

## **COMPOSTING PROCESS**

Composting is nature's way of recycling. Composting biodegrades organic waste. i.e. food waste, manure, leaves, grass trimmings, paper, wood, feathers, crop residue etc., and turns it into a valuable organic fertilizer.

Composting is a natural biological process, carried out under controlled aerobic conditions (requires oxygen). In this process, various microorganisms, including bacteria and fungi, break down organic matter into simpler substances. The effectiveness of the composting process is dependent upon the environmental conditions present within the composting system i.e. oxygen, temperature, moisture, material disturbance, organic matter and the size and activity of microbial populations.

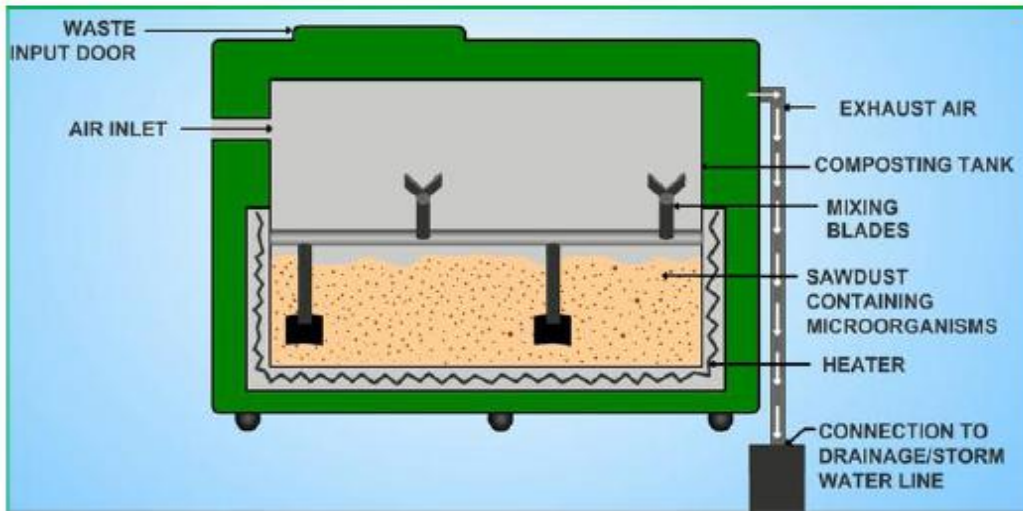
Composting is not a mysterious or complicated process. Natural recycling (composting) occurs on a continuous basis in the natural environment. Organic matter is metabolized by microorganisms and consumed by invertebrates. The resulting nutrients are returned to the soil to support plant growth.

Since approximately 45 - 55% of the waste stream is organic matter, composting can play a significant role in diverting waste from landfills thereby conserving landfill space and reducing the production of leachate and methane gas. In addition, an effective composting program can produce a high quality soil amendment with a variety of end uses.

The essential elements required by the composting microorganisms are carbon, nitrogen, oxygen and moisture. If any of these elements are lacking, or if they are not provided in the proper proportion, the microorganisms will not flourish and will not provide adequate heat. A composting process that operates at optimum performance will convert organic matter into stable compost that is odor and pathogen free, and a poor breeding substrate for flies and other insects. In addition, it will significantly reduce the volume and weight of organic waste as the composting process converts much of the biodegradable component to gaseous carbon dioxide.

Illustration of the process:





**Annexure III**  
**Equipment details**

S. NO	Description
1.	<b>Organic waste converter:</b>
	<ul style="list-style-type: none"><li data-bbox="500 468 1013 499">✚ Organic waste Digester or Reactor</li><li data-bbox="500 520 1289 611">✚ PLC controlled fully automatic Low Power Consuming Machine</li><li data-bbox="500 632 834 663">✚ Heating coil included</li><li data-bbox="500 684 846 716">✚ Outer Panel MOC – SS</li><li data-bbox="500 737 802 768">✚ Mixing blades – SS</li><li data-bbox="500 789 1175 821">✚ Thermostat provision for temperature control</li><li data-bbox="500 842 948 873">✚ Overload protection included</li><li data-bbox="500 894 1317 984">✚ Indicators are provided for Power, Heater, Overload and Power saving mode</li></ul>

**Annexure IV**

**Specifications:**

- ✚ PLC controlled fully automatic plug and play machine
- ✚ Absolutely no fire, water, odour, smoke or gas. No harmful gas, odour, fire, smoke, fume or any such
- ✚ No intermittent handling during process ,Works silently
- ✚ Very low power consumption is the only running cost
- ✚ 85-90% reduction in volume:- 75 kg gets reduced to 10-15 kg of dry compost in just 24 hrs
- ✚ Dry compost can be cleared **once in 10-15 days**
- ✚ A single dose of microorganism pre-loaded before installation for life time

- ✚ No need for addition of microorganism thereafter normally – self generating
- ✚ Near 'zero' maintenance, no dedicated manpower required
- ✚ No harmful gas, odour, fire, smoke, fume or any such, No pathogens
- ✚ Highly compact: can be placed outdoor, overhead or even in the terrace with protection from rain .

**Annexure V**

**COMMERCIAL TERMS**

Sl.No.	Description	Cost in Rs. (To be quoted)
1	Supply & installation of Organic waste converter	
<b>(Amount should be quoted in words and figures)</b>		



## **Annexure – VI**

### **Terms and Conditions**

**TAX:**

Exclusive of all taxes.

**VALIDITY:**

The offer is valid for 15 days.

**DELIVERY:**

We shall deliver the equipment within 8-10 weeks from the date of receipt of technically and commercially clear purchase order along with requisite advance.

**GUARANTEE/WARRANTEE:**

The equipment supplied is guaranteed for a period of 12 months from the date of supply against manufacturing defects only.