

# CONCEPT INFORMATION

- **Meets 17 of 17 of UN's SDG GOALS**
- Verified by DNV
- IMO / MARPOL Approved
- Superior compared to conventional land-based solution
- Tsunami and Earthquake resilient
- Environmental Friendly & Robust
- Recovery of bio solids/fertilizer
- Closed system (no odor/smell)
- Contributor to solving the water scarcity challenge.
- Professional crew and operation
- Limited bureaucracy, regulations, labor and permits needed.
- Can relief land based WWTP while doing maintenance
- Flexible energy source - i.e. wind, solar, shore electricity, etc.
- Flexible in terms of location
- No land purchase necessary
- Competitive capital expenditure
- High water quality and energy recovery rate
- Responds to the accelerating climate and social changes
- Reliable and Affordable water source
- 15 – 24 months delivery time
- Classification in accordance with DNV, Lloyds, BV, ABS.
- Can serve multiple locations simultaneously (cities, islands, oil rigs)



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# EnviroNor™

## FLOATING WASTEWATER TREATMENT



A sustainable floating solution  
for permanent or temporary  
deployment.



# OFFSHORE RECYCLING OF SEWAGE AND WASTEWATER

## Vessel (Ship):

Tanker from 10 000 to 300 000 DWT. Converted into a treatment plant by fitting necessary equipment, filters and piping, together with some structural modifications to tank spaces.

## Capacity:

Treatment capacity can be up to 20 000 m<sup>3</sup>/hour or 480 000 m<sup>3</sup>/day. This equals wastewater from 2 400 000 people, with a person equivalent of 200 L/day.

## Wastewater:

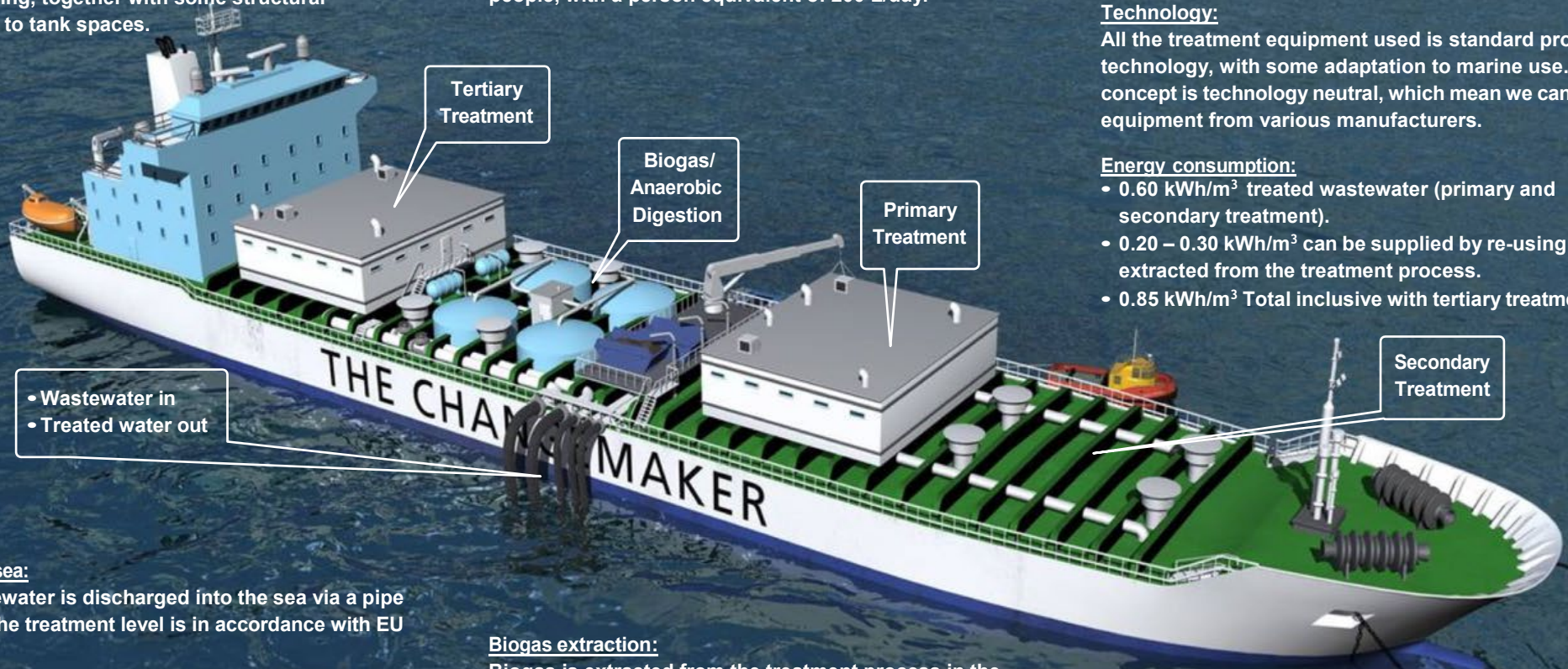
Wastewater from the onshore infrastructure is collected and pumped onboard the vessel via one or multiple pipes.

## Technology:

All the treatment equipment used is standard proven technology, with some adaptation to marine use. The concept is technology neutral, which means we can use equipment from various manufacturers.

## Energy consumption:

- 0.60 kWh/m<sup>3</sup> treated wastewater (primary and secondary treatment).
- 0.20 – 0.30 kWh/m<sup>3</sup> can be supplied by re-using biogas extracted from the treatment process.
- 0.85 kWh/m<sup>3</sup> Total inclusive with tertiary treatment.



- Wastewater in
- Treated water out

## Discharge to sea:

Treated wastewater is discharged into the sea via a pipe connection. The treatment level is in accordance with EU standards.

## Clean water to shore:

Disinfected water is pumped back to shore via pipes, and can be used for industrial purposes (e.g. cooling water) or for irrigation purposes. Additional treatment steps can bring this up to drinking water standard.

## Biogas extraction:

Biogas is extracted from the treatment process in the bioreactors and burned in the boilers onboard for electricity production. The extracted biogas may cover up to 40-50% of the total energy needs of the floating treatment plant.

## Fertiliser production:

Sludge is removed from the process, dewatered and dried to form biosolids, which can be used as agricultural fertilisers.

WATER "ON-DEMAND" BY ENVIRONOR [WWW.ENVIRONOR.NO](http://WWW.ENVIRONOR.NO)

