

Treating greasy waste

Greasy waste – a collective term for fats, oil and grease – is a type of waste that often goes unnoticed. But clearing greasy waste regularly ensures that sewage systems do not get clogged. The treatment of such waste also makes processing used water a more sustainable process by producing biogas, which in turn can be used to generate electricity to help power PUB's water reclamation plants. **Ng Keng Gene** unpacks these processes.

1 Discharge bay

- Workers check that tanker seals are intact before breaking them.
- A sample is taken to ensure the greasy waste is not contaminated with other types of waste.



- Greasy waste is piped from the tankers into a pre-treatment facility.



- Between **400 and 500 cubic m** of greasy waste is received daily. Enough to fill

50 tankers

2 Pre-treatment facility

- Greasy waste goes through two drum screens, which filter out large debris like rags, tissue paper and wet wipes, followed by materials like sand and grit.



3 Dissolved air flotation

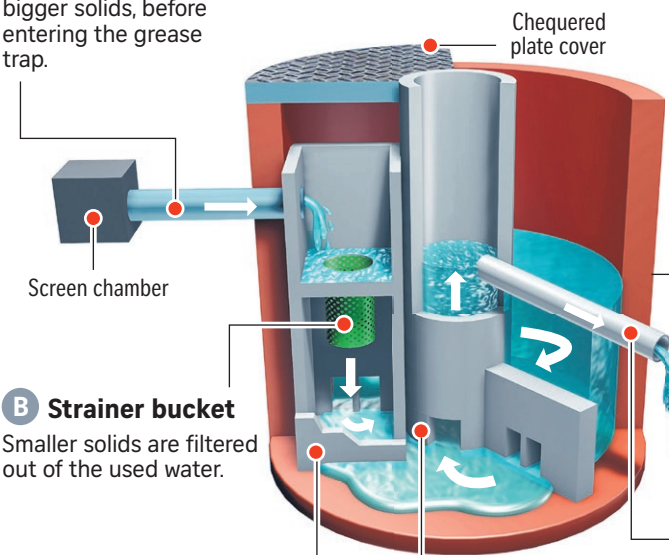
- Micro air bubbles are pumped into the waste, attaching itself to greasy particles.
- These grease particles have a lower density than water and will float to the surface.
- The concentrated greasy waste at the top is collected via a scraper.



GREASE TRAP

A Inlet

Used water from food preparation areas and dish washing bays of food establishments passes through the screen chamber, which removes bigger solids, before entering the grease trap.



B Strainer bucket

Smaller solids are filtered out of the used water.

C Outer ring chamber

- This is where greasy waste is separated from the rest of the used water.
- A round design creates a longer pathway and gravitational separation does the rest – as greasy waste and used water have differing densities.
- Greasy waste is vacuumed out of the outer ring chamber into tanker trucks.

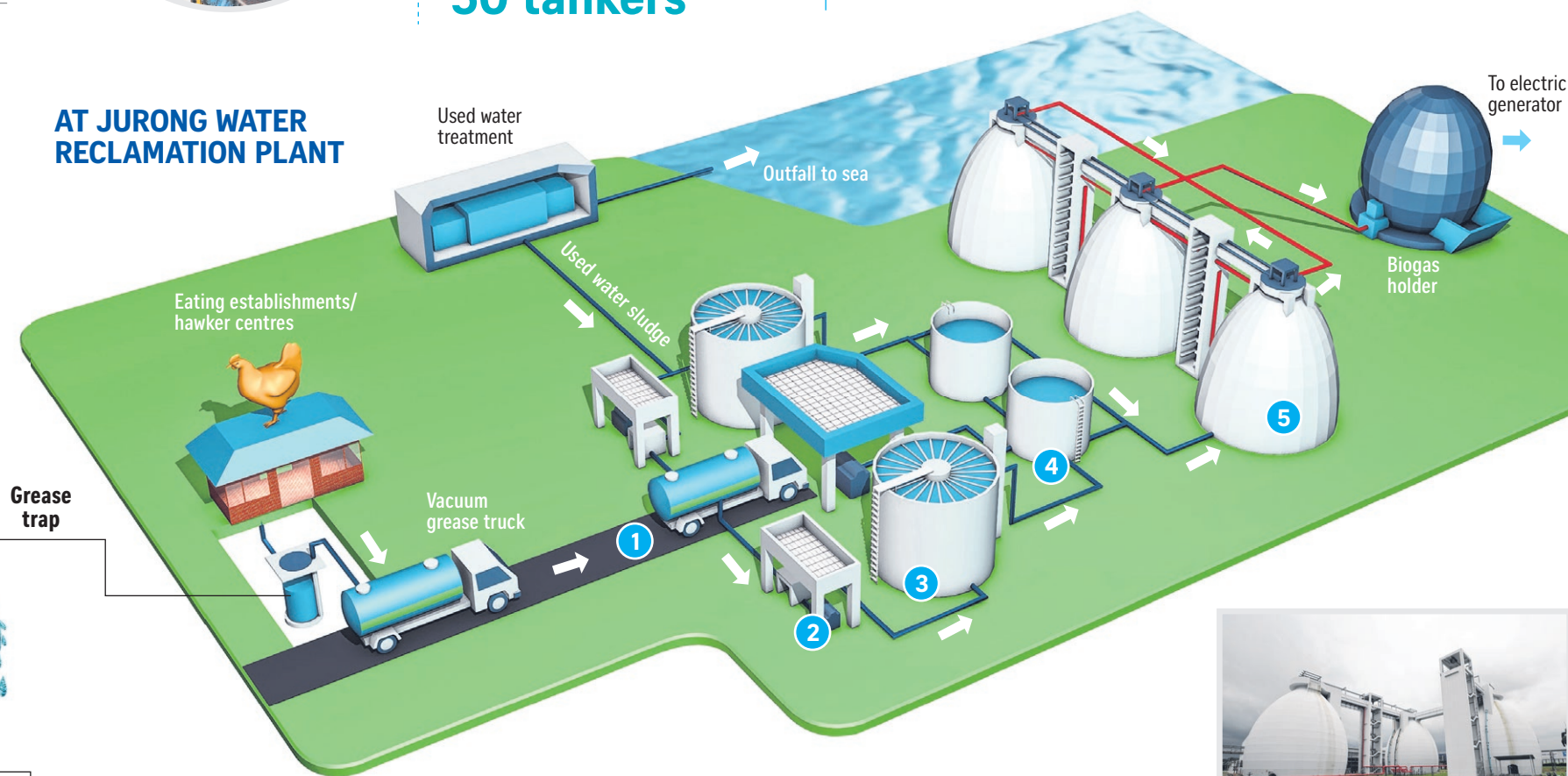
D Inner ring chamber

Grease-free used water enters the inner ring chamber.

E Outlet

Used water overflows into the outlet, which leads to the public sewer.

AT JURONG WATER RECLAMATION PLANT



4 Mixing tank

- Concentrated greasy waste is mixed with used water sludge before entering a digester.
- Co-digesting concentrated greasy waste with used water sludge has a synergistic effect that increases biogas yield.



5 Digester

- Each digester is about 33m-tall, about the height of an 11-storey housing block.
- Concentrated greasy waste and used water sludge remain in the digester for up to 30 days.



- This process converts the organic matter into biogas, which contains 60 to 70 per cent methane.
- Biogas produced through the process is converted into electricity, which meets about 30 per cent of Jurong Water Reclamation Plant's daily power needs.