UTM
UNIVERSITI TEKNOLOGI MALAYSIA

SIL-RH

FROM SEAWATER TO FRESHWATER

PRODUCT FEATURES

- SIL-RH Membrane Distillation is a mobile system to turn seawater into drinking water through desalination process.
- The heart of the system is a novel ceramic hollow fiber membrane derived from rice husk waste.
- The 100% salt rejection with high flux is comparable to that of commercial reverse osmosis (RO) membrane.
- Excellent long term ability to operate at high temperature and pressure without significant performance deterioration.

NEEDS

- Water cover 71 % of theEarth'sBUT only 1 % is freshwater that can use as drinking water. 69 % is seawater which is have high concentration of salt and other contaminants such as bacteria and viruses. And another 1% is tucked away as glazier.
- In Malaysia, a lot of people suffer due to water shortage cause by natural disaster such as flood.
- Around 20% of paddy weight is waste rice husk and was often burned or dumped on landfills.
- World demand for membrane technologies will rise 8.5% annually to 26.3 billion in 2019.

APPROACH

- The ceramic hollow fiber membrane was fabricated using phase-inversion process and sintering technique. The membrane was surface modified using
- hydrophobization process thus enhanced the performance of the desalination process. The produced membrane was assembled into a direct
- contact membrane distillation system. The freshwater extraction was obtained by the heat
- and mass transfer processes.

BENEFITS PER COST

- Estimated membrane cost: US$ 40/m^2 is much cheaper than of alumina membrane (US$ 500/m^2) and polymeric membrane (US$ 50-70/m^2).

COMPETITORS

- Thermal treatment plant.
- Reverse osmosis membrane system.

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