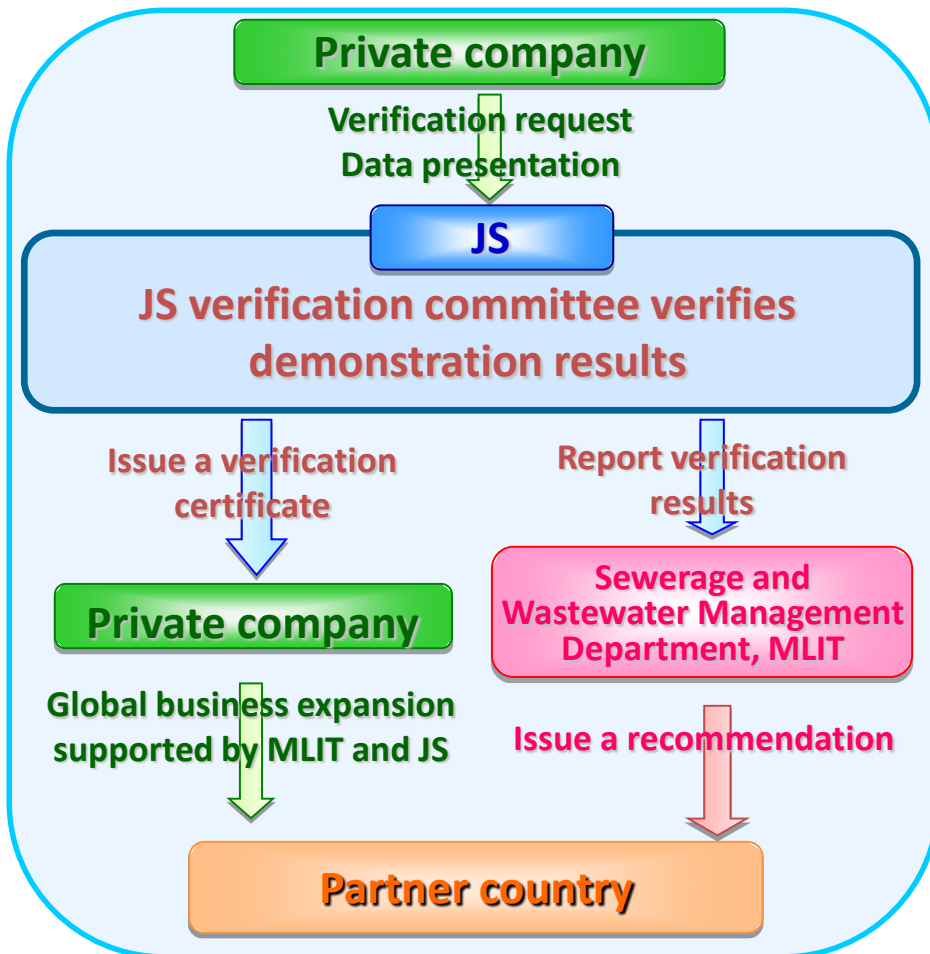


Technology Verification Program

Technology Verification Program aims to support domestic private companies' global business expansion. In 2022, the program verified DHS technology for Thailand.

- Applicant: SANKI ENGINEERING CO., LTD.
- Energy-saving and easy O&M DHS wastewater treatment technology
- Target: Thailand
- Demonstration site: Khon Kaen city
- Confirming party: Japan Sewage Works Agency

Process flow chart of global technology verification



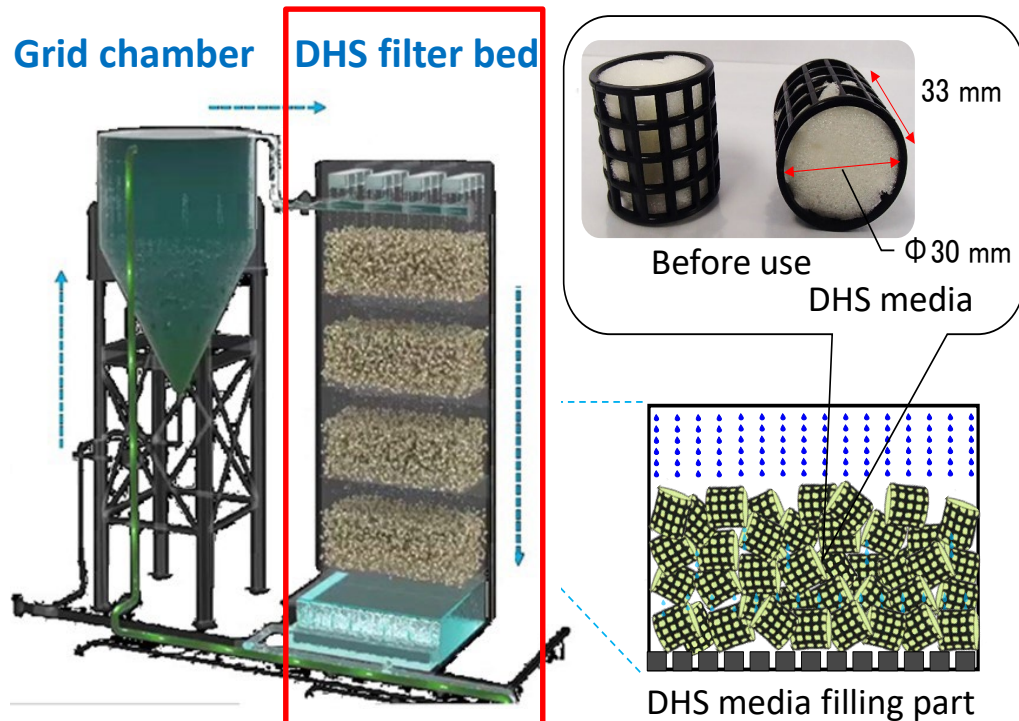
Verification items	Verification method
① Treatment performance	Results of the water quality analysis acquired at demonstration
② Sludge generation	
③ Unit power consumption	Model design calculation of 1,500m ³ /day based on the demonstration
④ Footprint	
⑤ O&M performance	Demonstration results



Appearance of the demonstration facility in Khon kaen city

DHS(Down-flow Hanging Sponge): A trickling filter adopting sponge carriers has an innovative refine compared to the existing trickling filters.

- **Stable treated water quality:** Standard design inflow quality satisfied discharge standard in Thailand.
- **Low sludge generation:** Long sludge retention time at DHS filter bed makes low sludge generation.
- **Energy-saving:** Requiring no aeration. Only lift pumps and ventilator to DHS filter bed need electricity.
- **Space-saving:** Smaller footprint than the OD process
- **Labor- saving:** Less equipment than the OD process makes O&M easy.



Scope of the technology verification

Application conditions

- (1) Water temperature
Demonstration in Thailand: 25°C and over all the time
Actual scale in Japan: Treatment performance changes at above or below 20°C
⇒ Performance may decrease below 20°C
- (2) Influent quality
Mixing much oils and fats degrades DHS treatment performance ⇒ Need to consider setting up such as grease-trap
- (3) Treatment capacity
Assuming medium to small-scale WWTP
(Model calculation of 1500m³/day)