

# DHS System

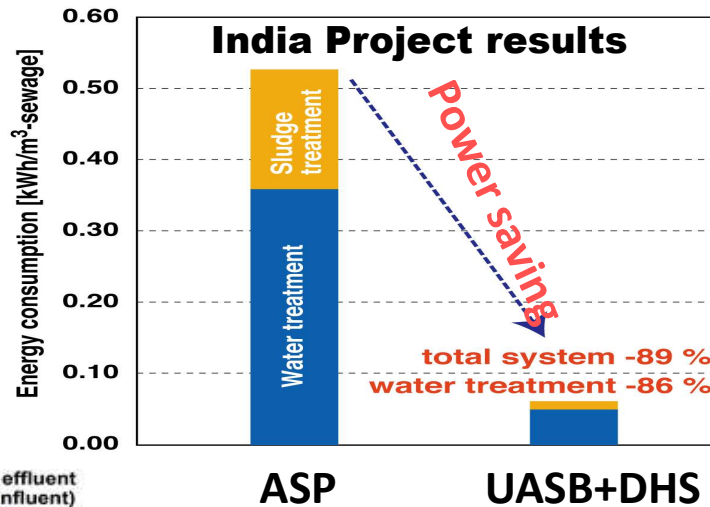
~**Quick Installation** And **Minimum Maintenance** DHS  
Pilot Plant in Kota Kinabalu City, Malaysia~

2021, October

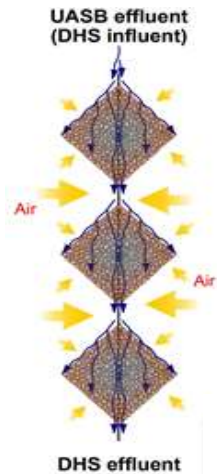


Yoshihiro KIRISHIMA  
NJS Co., Ltd.

# DHS reactor (Agra, India)



- Low Power Cost (No Aeration)
- Less Space (Short HRT)
- Less Sludge Production (Long SRT)
- Easy Maintenance



	DHS	vs.	ASP
SRT (days)	>100		<10
Sludge production (kgSS/kg COD rem.)	0.06		0.42~0.46



**Polyurethane  
Sponge (D=40mm)**

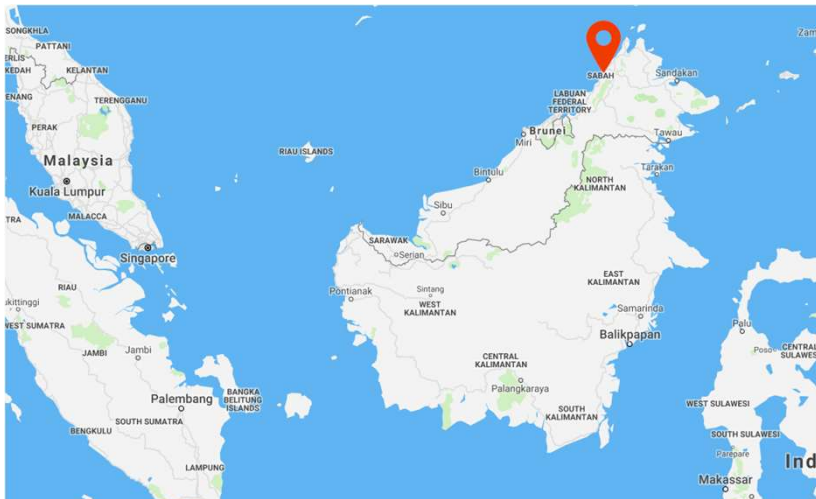


# Kota Kinabalu, Malaysia, 2019~Present



## ■ PROJECT : Model Project for Improvement of Water Environment in Asia (MoE, Japan)

1. Improvement of Water Env. in Likas Bay
2. Conservation of Tourism Resources
3. Easy O&M as well as Reducing CO<sub>2</sub> & GHGs



<https://www.freedomdive.com/uploads/Image/map/map-kota-kinabalu.png>  
[https://img.freepik.com/free-vector/covid-coronavirus-in-real-3d-illustration-concept-to-describe-about-corona-virus-anatomy-and-type\\_17005-733.jpg?size=626&ext=jpg](https://img.freepik.com/free-vector/covid-coronavirus-in-real-3d-illustration-concept-to-describe-about-corona-virus-anatomy-and-type_17005-733.jpg?size=626&ext=jpg)



# DHS Plants in the World



**UASB + DHS system**  
2012-2014 (5,000m<sup>3</sup>/d)

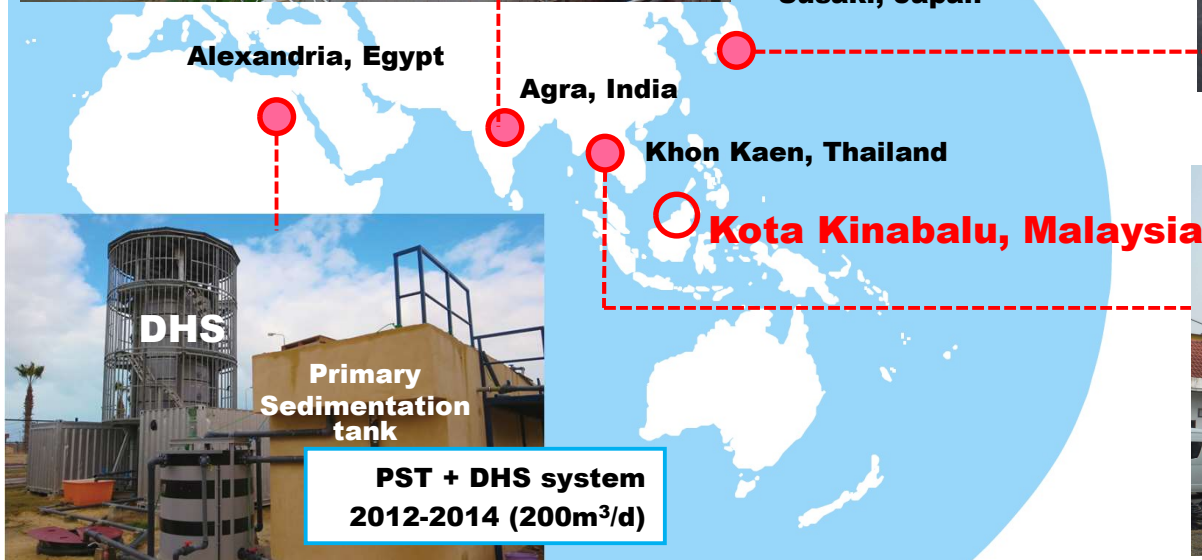
Susaki, Japan



[O&M]  
NJS Co., Ltd., etc

[Consortium] Susaki City, Japan Sewage Works Agency,  
Sanki Engineering Co., Ltd., Tohoku University,  
National Institute of Technology, Kagawa College,  
National Institute of Technology, Kochi College

**Compact Package type DHS**  
2016- (500m<sup>3</sup>/d)

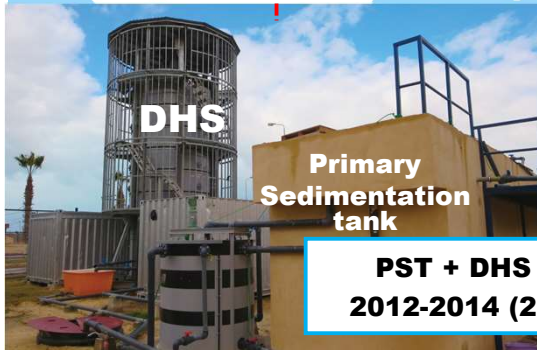


Alexandria, Egypt

Agra, India

Khon Kaen, Thailand

**Kota Kinabalu, Malaysia**



DHS

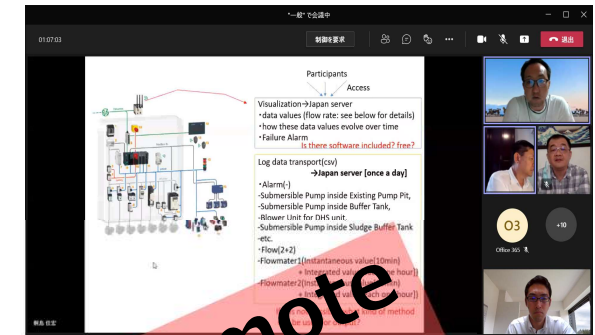
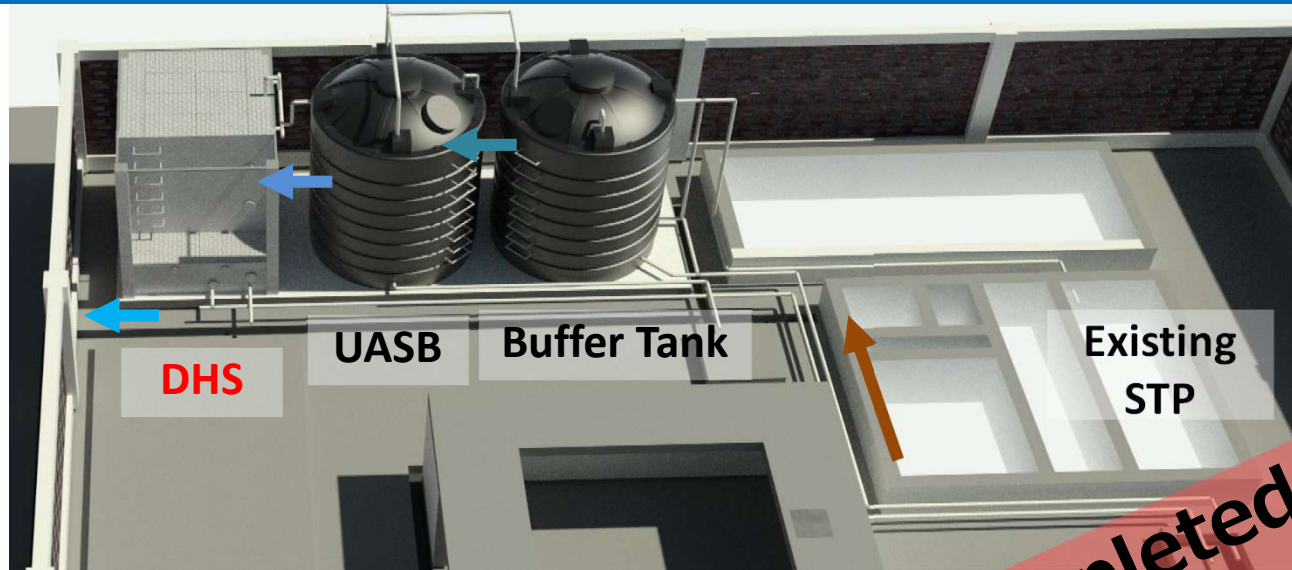
Primary  
Sedimentation  
tank

**PST + DHS system**  
2012-2014 (200m<sup>3</sup>/d)



**PST + DHS system**  
2018- (100m<sup>3</sup>/d)

# Kota Kinabalu, Malaysia, 2019~Present



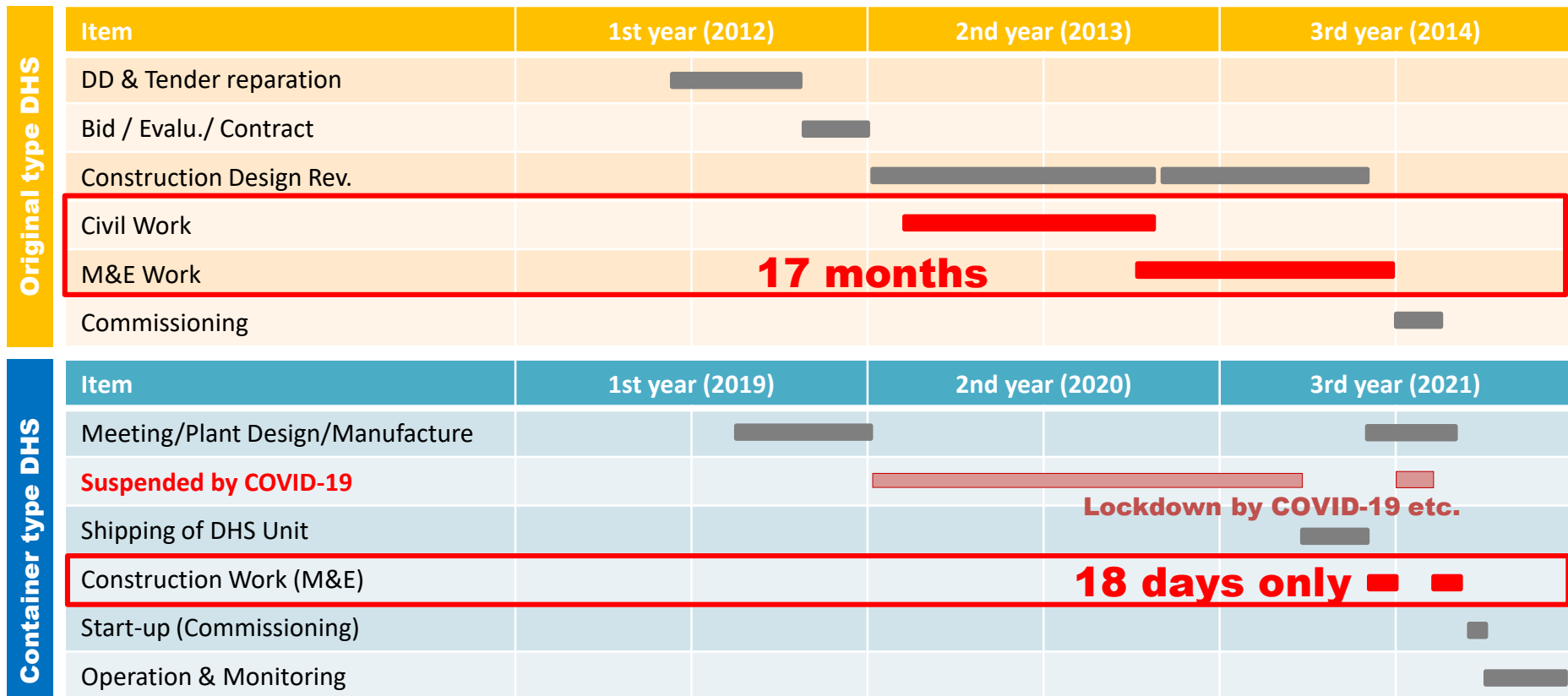
**Completed by Remote  
Constr. on 8<sup>th</sup> Sept.**



# Quick Construction



## REVIEW : Construction Speed



Lockdown by COVID-19 etc.

# Quick Construction



## REVIEW : Construction Speed



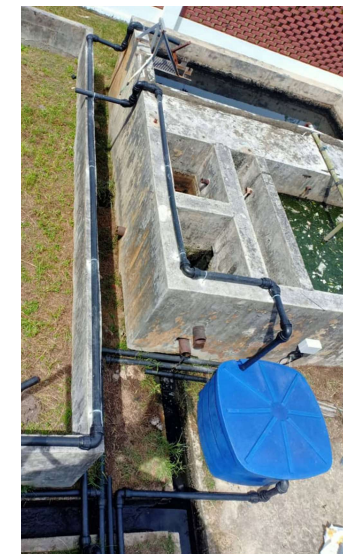
Foundation Construction (2 days)



Installation Work for Buffer Tank, UASB Tank and DHS Reactor (2 days)



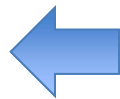
**Only 18 days to complete set-up**



Pipe Work (8 days)



Electrical Construction Work (3 days)



Test Run( 3 days)

# Water Quality & Power Consumption



### DHS Outlet Channel

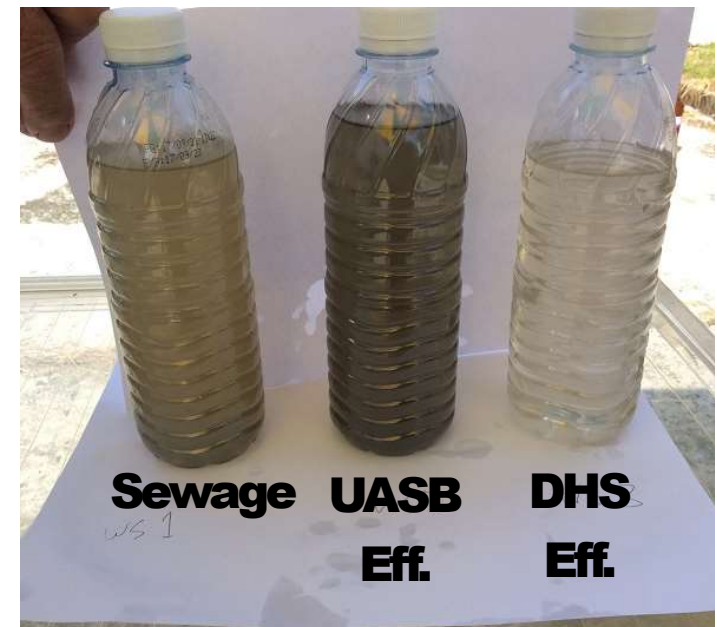


Date	BOD (LAB Test)
10 <sup>th</sup> Sept.	3 mg/L
17 <sup>th</sup> Sept.	4 mg/L

### DHS Overflow Part



**Start Operation on 8<sup>th</sup> September**  
**Power Consumption 0.6 kWh/m<sup>3</sup> (30m<sup>3</sup>/day)**





# DHS System

~**Quick Installation** And **Minimum Maintenance** DHS  
Pilot Plant in Kota Kinabalu City, Malaysia~

**Contact Details**

**NJS Co., Ltd.**

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