



WATER & WASTEWATER ASIA

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**Strengthening resilience
across APAC: A strategic
vision for water and
maritime infrastructure**

**Addressing the perfect
storm: Dr Krom on
water management and
environmental resilience**

**Transforming
wastewater operations
through strategic data
management**



Smart hybrid system turns urban stormwater into a reusable resource

EcoClean's booth: L1-C19

As tropical cities face heavier rainfall, flash flooding and rising pollution, a new pilot project has shown how polluted urban runoff can be treated and reused through a low-cost Hybrid Stormwater Treatment System (HSTS).

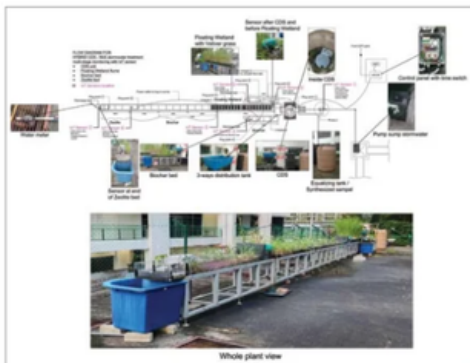
Designed for tropical environments, the system combines conventional engineering with nature-based solutions in a multi-stage process tested using real stormwater from an existing drainage network. Water first enters a flow equalisation tank, then passes through Continuous Deflective Separation

(CDS) technology to remove litter, debris and solids. It then flows through a floating wetland planted with vetiver grass, where natural processes absorb nutrients, before a final polishing stage using biochar and natural zeolite filtration.

Pilot results were highly encouraging, achieving pollutant reductions including 90% Total Suspended Solids, 80% Biochemical Oxygen Demand, 78% nitrate, and 57% reductions in both Total Dissolved Solids and Chemical Oxygen Demand. Oil and grease were reduced by 50%. It was carried out as a joint research effort between Ecoclean Technology and the University of Nottingham Malaysia.

The system also used Raspberry Pi devices and cloud-based dashboards built with Python for near real-time monitoring, increasing data collection during storm events and generating maintenance alerts.

The project shows how combining proven treatment technologies, natural systems and smart monitoring can transform stormwater from a waste stream into a scalable resource for more resilient urban water management.



Whole plant view

The pilot system setup
(Image: Ecoclean
Technology & University
of Nottingham Malaysia)