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Media Release

DATO' IR. PATHMANATHAN K.
CEO, PBAHB and PBAPP.

Penang wins the MWIA 2026 Innovative Water Solutions Award

- **Malaysia's first "Zero Waste Water Treatment Residue Recycling System" at the Sungai Dua Water Treatment Plant.**

PENANG, Wednesday, 23.9.2026: PBAPP's water treatment residue (WTR) recycling system has won the Malaysia Water Industry Award (MWIA 2026) for "Most Innovative Water Solutions" for Penang.

Water treatment residue (WTR) is a by-product of the conventional processes of treating raw water from rivers, streams and lakes to produce treated water that is safe for public consumption. In Malaysia, WTR is classified by the Department of Environment (DOE) as a scheduled waste that is due for dumping (by all water supply operators in all states) in designated landfill sites.

To date, Penang is the only Malaysian state that recycles WTR safely, effectively and efficiently.

In March 2025, PBAPP launched a "Zero Waste Water Treatment Residue (WTR) Recycling System" in the Sungai Dua Water Treatment Plant, Penang's largest and most important water treatment plant (WTP).

Last night, during the 38th MWA Annual Dinner & Awards Night at the Penang Waterfront Convention Centre, we received another award for the recycling system. This award was from the Malaysia Water Association (MWA) and Pengurusan Aset Air Berhad (PAAB).

Recycling WTR the PBAPP Way

At the Sungai Dua WTP, WTR is being systematically recycled to become a raw material for making cement bricks, in accordance to the findings of PBAPP's own research and development (R&D) activities since 2009.

In the plant, wet WTR is allowed to settle before it is thickened and compressed to produce a form of dewatered waste material. This dewatered WTR is then transported to a DoE-approved brickmaking facility in the Bukit Minyak Industrial Estate.

Just as importantly, the WTR dewatering processes yield a continuous stream of “supernatant water” that is also harvested cyclically in Sungai Dua WTP to produce more treated water. So, it may be said that recycling WTR has also rewarded Penang with an “additional raw water resource”.

Benefits of Recycling WTR in Penang

The key benefits of recycling WTR are as follows:

- Implementation of a “safer, greener and smarter solution” in WTR management instead of straightforward landfill disposal;
- Conversion of 450 metric tonnes of waste material per day in 2025 into a useful raw material for making bricks;
- Harvesting about 45 million litres per day (MLD) of “supernatant water” as a secondary raw water resource at the Sungai Dua WTP in 2025. 45 MLD may be used to fill 18 Olympic-sized swimming pools or 3 million large (1.5L) drinking water bottles every day.
- Reducing PBAPP’s WTR management costs by 73.6%, from RM550 per metric tonne (for disposal) to RM145 per metric tonne (by recycling). PBAPP’s estimated cost savings in 2025 amounted to RM55.2 million.
- Ensuring “zero impact” on Penang water rates: PBAPP avoided a RM20 million capital expenditure investment for the construction of the Sungai Dua Dewatering Plant (SDDP) by forming a working partnership with Alam Aliran Kualiti Sdn Bhd, a Penang-based scheduled waste management company.
- Paving the way towards more environment-friendly, cost-efficient and value-added WTR recycling initiatives throughout Malaysia.

Thank You.

Issued by : Syarifah Nasywa bt Syed Feisal Barakbah
Corporate Communications Section
Email : comms@pba.com.my