

Half-Day Trip to Coastal Works in Port Dickson

by **Engr. Nor Hisham bin Mohd. Ghazali**, *MIEM, P. Eng.*

ON 18 October 2008, the Water Resources Technical Division organised a half-day trip to Port Dickson for a study tour of the beaches that had been restored through coastal protection works. The visit was guided by Engr. Nor Hisham bin Mohd. Ghazali who was the former Head of Design Unit, Coastal Division, Jabatan Pengairan dan Saliran Malaysia (JPS).

A total of 15 members from IEM participated in the trip together with nine non-members, including seven from the Kuala Lumpur Bar. The group departed by coach from the IEM office in Petaling Jaya at 8.30 a.m. and reached Port Dickson at 9.30 a.m.

Six stops were planned as part of the itinerary, and the first stop was the Bagan Pinang beach at 2nd mile Port Dickson. Engr. Nor Hisham explained that the Port Dickson beach restoration, completed by JPS in 2006, covered the beaches of Bagan Pinang down to the Admiral Cove. The main component of the project was to re-nourish the existing beach which had suffered from erosion over the past 10 years.



Figure 1: Bagan Pinang beach and drainage outfall



Figure 2: Circular marina at Bagan Pinang

The existing shoreline was extended with 60 meters of dry beach berm. The project included a drainage improvement component where existing natural drains over the beach were diverted into proper outfalls which passed under the new beach. At Bagan Pinang, Sungai Saguni – a major drainage outfall – was widened and extended seawards, thereby improving the natural flushing capacity (Figure 1).

The group then walked southwards towards a mangrove islet called Pulau Burung which was the second stop. Here, one could see the remnants of earlier seawalls now covered by the beach nourishment. A circular mini-marina was built here as part of a project to cater to the small but active fishing community of Bagan Pinang (Figure 2).

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Figure 3: Revetment at Pantai Sri Cahaya (near Pulau Si Rusa)



Figure 4: Beach at Selesa Resort where the Beach Management System is installed



Figure 5: Final stop – Teluk Kemang

This mini-marina, protected by twin rock breakwaters, provided shelter and security to the fishing boats. Engr. Nor Hisham explained that the sand source for the beach nourishment was from an approved location about 12km away from the beach and within state waters.

The third stop was Pantai Saujana. This beach was once nourished in 1994. The recent beach nourishment provided an additional 60m whereby 20m of the new berm was turfed and planted with shade trees.

This was done to provide cool and shady spots for the convenience of local picnickers. An important element

of the beach design at Pantai Saujana was that the existing natural drain running across the beach had now been replaced by an underground drain and flow was diverted to the headland at the end of the bay.

The group then moved on to Pantai Sri Cahaya (next to the PD Yacht Club), which is the fourth stop, where a unique Y-shaped beach was created linking Pulau Si Rusa to an artificial headland created by an earlier coastal project. Here, Engr. Nor Hisham explained the components of revetment design stressing that some contractors, in the interest of aesthetics, erroneously constructed revetment surfaces using the flat surface of the rock units. This does not produce the roughness desired to reduce wave run-up. The rocks must also be angular so that they interlock well (Figure 3).

The fifth stop was at Batu 5 in front of the Selesa Beach Resort. A beach drainage system had been built here, which is parallel to the beach nourishment project. This system – known as the beach management system (BMS) – worked on the principle that unsaturated beaches are better consolidated and are more resistant to erosion. BMS drains water from the beach sand and into a sump where water level sensors are located. When the critical water level is reached, a pump pumps out water at one end of the beach. Two pumps are installed so that they are not overworked.

The sixth and final stop was at Teluk Kemang beach which was packed with visitors. Engr. Nor Hisham explained that what makes a beach popular is sometimes not so much the natural beauty, but also the presence of amenities such as changing rooms and toilets, food outlets and ample parking space. Teluk Kemang has all the necessary amenities and is presently the most popular beach in Port Dickson (Figure 5). The beach itself has become quite narrow and will soon need to be improved.

The trip ended at about 1.00 p.m. and the group had lunch at stalls nearby before returning to Petaling Jaya. ■