Visit to Pahang-Selangor Raw Water Transfer Project Site

WATER RESOURCES TECHNICAL DIVISION

by Engr. Jama'iatul-lailah binti Mohd. Jais

THE Water Resources Technical Division (WRTD) organised a technical visit to the Pahang-Selangor Raw Water Transfer Project Site in Karak, Pahang, on 6th June 2012. A total of 20 IEM members participated in the visit that was arranged with the following objectives:

- To visit the construction site of the water transfer tunnel that will be used to convey water from the Semantan intake to the treatment plant;
- To gain knowledge and understanding of the latest technology associated with Tunnel Boring Machines (TBMs) and the New Austria Tunneling Method (NATM) used for the tunnel excavation; and
- To understand the components, process flow and operational aspects of the completed facilities.

Ir. Arshad bin Abdul Rashid, the Deputy Director for Pahang-Selangor Raw Water Transfer Project (Tunnel), welcomed the participants at the project site. In his opening remarks, he mentioned that the inter-state water transfer scheme between Pahang and Selangor was conceptualised in the 1990s, with the completion target set for 2014. The scheme aims to convey raw water at 1,890 millions litre per day from Sungai Semantan in Pahang to the Hulu Langat water treatment facility in Selangor. The raw water will be transferred through a 44.6 km long, 5.2 m diameter tunnel, with gravity flow to the water treatment plant. The concept of inter-basin water transfer is not new to Malaysia. Many similar inter-basin water transfer schemes have already been implemented, where the transfer of water is localised within the state itself such as in Johor and Melaka. Currently, the project has reached about 60% completion, and is 3% ahead of its scheduled work programme.

PROJECT OVERVIEW

A briefing on the project was provided by En. Suliman bin Haji Esnawi, the Senior Assistant Director (Civil). Principally, the project utilises runoff from Sg. Bentong, Sg. Telemong and Sg. Kelau with the provision of a reservoir in Sg. Kelau. Sg. Bentong is renamed as Sg. Semantan below the confluence with Sg. Kelau. The abstraction point is at the intake at Sg. Semantan and then the raw water is pumped to a connecting basin at the tunnel inlet. From this connecting basin, the raw water is transferred to an outlet connecting basin through the tunnel by gravity flow and distributed to receiving basins of the treatment plant through gravity pipelines. The components of the project are shown in Table 1.

Table 1: Components of the Pahang-Selangor Raw Water Transfer Project

No.	Component	Description
1.	Water transfer tunnel	• 44.6 km in length and 5.2 m diameter, with a longitudinal slope of 1/1,900; • Operation is to be under free flow conditions at a designed discharge rate of 27.6 m^3/s; • Tunnel excavation is primarily through the use of Tunnel Boring Machine (TBM) for 35 km. The upper and lower ends are to be excavated by the conventional New Austria Tunneling Method (NATM); • The tunnel is to be bored through the Titiwangsa Main Range that typically has elevations exceeding 1,200m above MSL; • Bedrock along the tunnel consists of metamorphosed rocks of the Karak formation for the initial 3.5 km from the inlet. The remaining portion is granite; • Inlet and outlet conduits of 4.0 m width and 4.7 m height are designed as cut-and-cover type horseshoe-shaped culverts with vertical walls.
2.	Semantan Intake and Pumping Station	• Semantan intake is an abstraction point of raw water located along Sg. Semantan, 1.5 km from the confluence of Sg. Bentong and Sg. Kelau; • Maximum discharge of 27.6 m^3/s is to be diverted to the pumping station located at the right bank.
3.	Pipeline	• Two lines, 3.0 m in diameter each and approximately 11.8 km in length; • Steel pipe with internal mortar lining. Special pipes are used across pipe beam bridges where the pipeline crosses a river.
4.	Kelau Dam	• Effective capacity is 299 million m^3; • Located 5 km upstream from the confluence of Sg. Kelau and Sg. Bilut within a narrow gorge.

After the briefing, the participants were given the opportunity to witness and experience for themselves the actual tunnelling work. From the point of access down into the tunnel (ADIT), the participants were transported by tram on a 5 km long journey deep into the tunnel which lasted about 1 hour. The participants were brought to see the TBM and were briefed on the detailed construction of the tunnel. The memorable site visit ended shortly afterwards. ■

NOTICE ON NOMINATION PAPERS FOR COUNCIL ELECTION SESSION 2013/2014

A notice inviting nominations for the Election of Council Members for Session 2013/2014 will be posted on the IEM Notice Board and on the website by 7 December 2012 for the information of all Corporate Members of IEM. Following the close of nominations on 7 December 2012, the election exercise will proceed. All Corporate Members residing overseas are requested to take note of the requirements of the Bylaw, Section 5.11, as shown below:

> *The voting paper shall, not less than twenty-eight (28) clear days before the date of the Annual General Meeting, be sent by post to all Corporate Members residing in Malaysia and to any other Corporate Member who may in writing request to have the paper forwarded to him. The voting paper shall be returned to the Honorary Secretary in a sealed envelope so as to reach him by a specified date not less than seven (7) days before the Annual General Meeting.*

Voting papers will be mailed out by 28 February 2013.

Any Corporate Members residing outside Malaysia, who wish to receive voting papers, are advised to write to the Honorary Secretary on or before 2 January 2013.

Thank you.

Election Officer, IEM

ANNOUNCEMENT – NON IEM EVENTS

16 to 19 December 2012

Call For Papers – 30th Conference of Asean Federation of Engineering Organisations (CAFEO) on Advantage of Integration of Engineering Service for Least Developed ASEAN Member Countries

Venue : Intercontinental Hotel, Phnom Penh, Cambodia
Organised by : CAFEO
More details about the conference can be found at: *www.bec.gov.kh*

29 to 31 May 2013

18th Southeast Asian Geotechnical Conference and Inaugural AGGSEA Conference (18SEAGC/1AGSSEA)

Venue : Singapore
Organised by : Geotechnical Society of Singapore (GeoSS) under the Auspices of Southeast Asian Geotechnical Society and Association of Geotechnical Societies in Southeast Asia
More details about the conference can be found at: *www.18seagc.com*