The story of Gemencheh Dam II

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The Gemencheh Dam is planned to provide domestic and industrial water for the central and eastern region of Negeri Sembilan up to the year 2015. It will consist of an earthfill dam 40 m high spanning the Gemencheh river 8 km upstream from Gemencheh township.

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Two possible damsites were investigated, namely the original proposed damsite (p.d.s.) and the alternative damsite (a.d.s.) about 300 m downstream from the original proposed damsite. In addition, a small dyke or saddle dam located at the Johol estate was also investigated. Other investigations include possible quarry sites and borrow pits.

The p.d.s., the a.d.s. and the Johol dyke are all located within the Pilah Schists with quartz-mica schist predominating at the damsites, and quartzite predominating at the Johol dyke. At the damsites, the foundation substrata comprise: alluvium (thin), residual soils of Pilah Schists, and bedrock (schists or quartzite). The bedrock is weathered to various degrees ranging from grade II to III. Depth to bedrock ranges from 20-25 m in the valley and up to about 40 m on the abutments. Permeability values for the residual soils of the Pilah Schists at the dam foundations range from 10-4 to 10-7 cm/sec; while permeability values for the bedrock range from 0 to 43 Lugeon units, with many values exceeding 10 Lugeon units, i.e. high permeabilities. The frequent occurrencs of "core loss" sections within the bedrock would indicate numerous fractures or highly weathered zones within the bedrock, hence high permeabilities.

Suitable granitic rocks and soils are available in the granite hills (Main Range Granite) – 2 km west of the damsites. The uppermost 1-3 m of clayey soils within the granite residual soil profiles are particularly sourced for use as clay-core material. Unfortunately, the quantity of river sand available appears to be limited, and recourse may have to be sought in using quarry fines (e.g. from existing quarry) for filter material.