

Spotting pitfalls beyond sinkholes

Geotech reports can keep other risks at bay, say experts

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KUALA LUMPUR: Advanced utility mapping and compulsory geotechnical reports for future developments in Kuala Lumpur can tackle more than just sinkholes, say disaster experts.

They say the move can also mitigate systemic risks such as landslides, flooding, ground subsidence, earthquake-induced hazards and infrastructure failure.

Universiti Teknologi Malaysia's (UTM) deputy vice-chancellor (development) Prof Dr Edy Tonnizam Mohamad called for geological and geotechnical risk assessments at high-risk areas.

Elaborating, he said high-risk locations include limestone areas and those with a history of subsidence – sinking of the ground due to underground material movement.

Higher ground, backfilled areas and steep slopes with evidence of past landslides should also be considered for mapping, he said.

"Mapping the conditions of subsurface and land integrity is of paramount importance, especially at high-risk locations.

"Here, scientific equipment can be used, such as ground penetrating radars, resistivity surveys and land survey equipment," said Edy Tonnizam, a distinguished fellow at UTM's Centre of Tropical Geoen지니어ing.

UTM Disaster Preparedness and Prevention Centre director Dr Khamarrul Azahari Razak said geotechnical reports assess soil stability and slope conditions, which are crucial in identifying areas prone to landslides.

"Early detection and early warning of unstable slopes and possible failure allows for preventive measures and risk reduction actions like retaining walls and proper drainage, preventing landslides.

"Utility mapping also helps design effective drainage systems," he said.

He said identifying ground subsidence would also allow early intervention.

"These reports assess soil liquefaction potential and seismic stability, which are vital for designing earthquake-resistant structures and mitigating earthquake impacts," he said.

Khamarrul Azahari said accurate utility mapping would also mitigate accidental damage during construction, which can lead to utility failures and associated hazards like gas leaks and water main breaks.

"Addressing these potential compounding hazards can enhance Kuala Lumpur's urban resilience against a wide range of geotechnical and environmental disasters, ensuring public safety, economic stability and environmental protection," he said.



Digging deep: DBKL will map the utility network under Kuala Lumpur and study its land structure following an incident of a woman going missing after falling into a sinkhole in the city. — SHAARI CHEMAT/The Star

Khamarrul Azahari said utility mapping exercises should accurately identify the location and condition of underground utilities like water pipes, sewage systems and electrical cables.

Details on their age and conditions should also be included.

"This is essential to prevent accidental damage during construction, which can lead to catastrophic failures like sinkholes," he said, stressing that all measures must be done collectively.

Khamarrul Azahari added that geotechnical reports should include thorough subsurface investigation, geological conditions, soil analysis, groundwater conditions and the identification of any potential subsurface voids as well as mitigation strategies.

"These reports help in understanding the soil's bearing capacity and stability, ensuring that the foundation design is robust and suitable for the specific site conditions," he said.

Khamarrul Azahari said modern technologies in geotechnical engineering and utility mapping provide more accurate and comprehensive data, making it an opportune time to implement these measures.

"Moving forward, it is crucial to maintain and continuously improve these practices to ensure the safety and resilience of Kuala Lumpur's development," he said.

This comes after Minister in the Prime Minister's Department (Federal Territories) Dr Zaliha Mustafa said Kuala Lumpur City

Hall (DBKL) would map the network of utilities under Kuala Lumpur and study its land structure.

She also said DBKL would ensure all construction in the city must include a geotechnical report.

This follows the tragedy where Indian tourist G. Vijaya Lakshmi, 48, went missing after falling into an 8m-deep sinkhole on Jalan Masjid India on Aug 23.

A search operation involving security forces and local authorities was launched the same day.

It was officially called off after nine days following a thorough assessment by experts from the Fire and Rescue Department, the police, DBKL, Indah Water Consortium and other agencies.