

Tailings dam survey

An essential part of risk management is the quantification of risk. Reliable and repeatable mapping of structures such as tailings dams helps operations to meet regulatory and safety requirements.

Maptek™ I-Site™ laser-based survey and monitoring systems provide a safe, accurate and cost-effective solution for dam wall stability monitoring. Capturing extremely detailed data enables advanced modelling and stability analysis.

The Sichuan Academy of Safety Science and Technology (SCASST) has undertaken extensive surveys of tailings storage facilities across the province of Sichuan in southern China.

Sichuan is a mountainous region prone to earthquakes and landslides. A large earthquake in 2008 killed almost 70,000 people and left millions homeless.

When tailings facilities are close to populated areas failure could have catastrophic consequences.

SCASST acquired two I-Site 8810 laser scanners in late 2013 and early 2014. The laser scanners have been deployed to survey tailings storage facilities, capturing detailed topographic information of structures and surrounding areas.

The laser scanners have also been used to survey water drainage channels with the resultant 3D topographic models applied to hydrographic modelling. Combined with rainfall statistics, this can help to determine if drainage channels are adequate.

The 3D topographic model is useful for generating failure simulations, which in turn can be used as the basis for mitigation works.

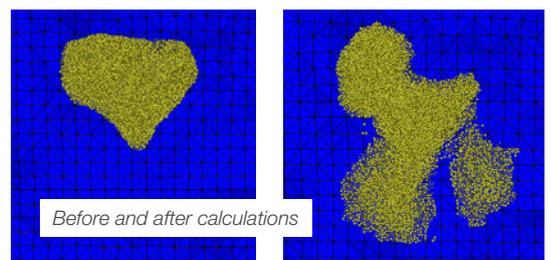
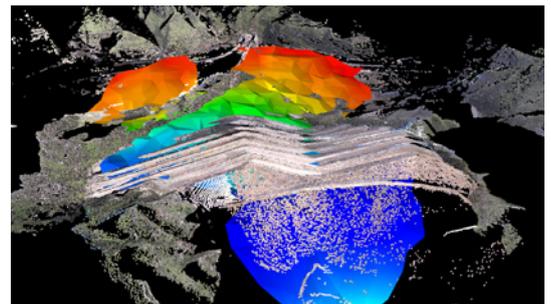
The Maptek solution is flexible and easy to deploy. The wide coverage of I-Site laser scanners ensures a clear picture of surrounding areas in 3D, as well as detailed data for areas of interest.

Repeated mapping allows a close audit to be maintained on the integrity of tailings dams and shows regulatory bodies that safety issues are being considered.

*Thanks to
Sichuan Academy of Safety
Science and Technology*



Stability analysis can be conducted on detailed I-Site point clouds and accompanying digital imagery.



Water drainage channels can be surveyed and the resultant 3D topographic models applied to hydrographic modelling.

Safely survey dam walls from remote standoff - high resolution digital image captured during scan.

