

Wireless monitoring of concrete dams in Asia

COUNTRY

MALAYSIA & TAIWAN

PROJECT TYPE

DAM MONITORING

SECTOR

CRITICAL
INFRASTRUCTURE

MAIN PRODUCT

LOADSENSING

Challenge

The Assyakirin concrete dam in Sarawak, Malaysia, collects rainwater during the monsoon season and releases it when river levels are not sufficient to supply the water treatment plants and agricultural areas in the region. The dam had a monitoring system but it was vandalized. This triggered the need to update and automate the monitoring of the reservoir level and slope stability of the dam.

Meanwhile, the Shihmen concrete dam, which contains Taiwan's third-largest artificial lake, needed automation of its piezometer monitoring to obtain real-time data on the pore water pressure of the soil.

Solution

Worldsensing partner Soil Instruments Malaysia installed robust Loadsensing vibrating wire data loggers to wirelessly monitor piezometers on the Assyakirin dam, while other data loggers were connected to ultrasonic water level sensors on the dam wall.

And at Shihmen, Sanlien Technology Corp connected Loadsensing data loggers to piezometers around the dam.

Loadsensing uses LoRa, a long-range, low-power wireless technology used by IoT networks worldwide. The system's low-power components remain in sleep mode and are only activated at predetermined times, extending the lifespan of the batteries for up to eight years.

Benefits

Real-time wireless monitoring of the concrete dams enables proper management of the water level in the reservoirs, which in turn minimizes the risks of flooding, ensures safety of the citizens, supports agriculture and protects livelihoods in the surrounding areas.

Loadsensing wireless data loggers also significantly reduce the costs for monitoring. And their robust design and strong radio signal allow the data loggers to be covered and protected from vandalism and harsh weather.

Advantages

- Improved water management from real-time reservoir level and pore pressure monitoring
- Enhanced safety through remote monitoring of critical dam infrastructures
- Vandal-proof operations thanks to the strong radio signals of the system



1 - Loadsensing vibrating wire data loggers



2 -Shihmen Dam in Taiwan

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