Case Details

The Indian Ocean Tsunami hit South East Asia on 26 December 2004 and is one of the ten most devastating natural disasters ever recorded. Following the event, the Indonesian government budgeted for the development of a tsunami warning system, to help reduce the impact of future tsunamis.

Key Requirements

Rugged and proven system
Reliable communications
Network redundancy
Compatibility with analog sensors
Compatibility with Modbus sensors

dataTaker DT80

1 A cost effective data logger expandable to 100 channels, 200 isolated or 300 single-ended analog inputs

2 Built-in web and FTP server allows for remote access to logged data, configuration and diagnostics

3 Modbus slave and master functionality allows connection to Modbus sensors and devices and to SCADA systems

4 Smart serial sensor channels capable of interfacing to RS232, RS485, RS422 and SDI-12 sensors

5 Rugged design and construction provides reliable operation under extreme conditions

6 Includes USB memory stick support for easy data and program transfer

The Indian Ocean Tsunami hits Thailand: Although Thailand is much further from the epicentre than Indonesia, the incoming wave is still confronting and devastated thousands of buildings.

dataTaker Solution

Equipment
dataTaker DT80 data loggers
Moxa G3111 GPRS Modems
HNS9201 Satellite Modems

Sensors
OTT Radar level sensors
OTT Shaft encoder level sensors
OTT Bubble level sensors

Implementation Notes

The tsunami monitoring project was proposed by Bakosurtanal, a government agency responsible for surveying and mapping within Indonesia. The *dataTaker* DT80 was chosen because of its capability of maintaining multiple communications ports and providing flexible data management. During a qualification test period over several years, the DT80 was also the only logger that demonstrated the robustness required for such a complex project.

A network of loggers constantly measures water levels using a variety of sensors, over hundreds of kilometres of coastline. Each logger pushes its data to a central server via the GPRS modem every minute using TCP/IP. The central server runs analysis software which can activate early warning alarms in the event of abnormal water levels or rhythms.

Where the DT80 stands out here is its ability to monitor network connections such that if data transfer via GPRS is compromised, due to network failure, congestion or otherwise, it can automatically activate the satellite modem as the preferred communications method until the GPRS modem is reset and running again. Having this control also saves considerable power so the system can be solar powered.

This system has now been deployed to many locations across Indonesia, including Aceh, Sumatera, Benkulu, Jakarta, Java, Sulawesi and more. Ideally these systems will be monitoring all coastal areas which are most at risk of tsunami activity.