Case Study

INLAND STREAMS MONITORING: PROTECTING WATER QUALITY FROM URBAN RUNOFF IN SINGAPORE

CHALLENGE

Despite the serious illnesses caused by contaminated water, deteriorating water quality is usually only discovered days afterward, after lab testing.

Instead, the NEA wanted to implement a real time water quality monitoring network around Singapore to get advanced warning of contaminants coming from unintended industrial and community discharges, runoff from green spaces and potential sewer leakage.

Adasa developed an on-line water quality monitoring system for Singapore's urban drainage systems.

ADASA'S SOLUTION

Together with our partner Tritech SysEng, Adasa **developed an online water quality monitoring system pilot for inland streams in Singapore**, including tailored prototype in-field equipment that alerts operators when there are high levels of nutrients and bacteria in water.

The system was designed for **automatic and uninterrupted operation, prepared to withstand corrosive environments** while continuously monitoring water quality parameters such as NH4+, NH3 and Total Ammonia Nitrogen, Nitrates and Phosphates.

The system incorporates **software and smart technology capable of controlling and managing data**, working independently and being monitored remotely.

Thanks to Adasa's solution, the client can predict the frequency and severity of likely spill events and their potential impact on water quality.

RESULT

The use of an **online continuous monitoring system using smart sensors to monitor nutrient loads** coming off the urban catchment combined with water modelling allows authorities to forecast the frequency and severity of likely discharge events and their potential impact on water quality for river, lakes and coastal areas.

It helps authorities to **identify pollution sources, assess if the drainage infrastructure** is right and predict water quality based on rainfall real-time data.

CLIENT

The National Environment Agency of Singapore (NEA) is the leading public organisation responsible for ensuring a clean and green environment, and that development is sustainable.

Its key roles are to protect Singapore's resources from pollution, maintain a high level of public health and provide timely meteorological information.

Consequently, the NEA regulates water pollution and quality in Singapore's sewerage system, inland water bodies and coastal areas.

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