Standardised Condition, Functionality, and Risk Assessment of Stormwater Quality Improvement Devices in an Automated, Cloud-Based Asset Management System

Ben Penhallurick, Charles Coathup
Renew Solutions, Gold Coast, Queensland, Australia

Approaches to assessing the condition, functionality, and risk of failure of stormwater quality improvement devices (SQIDs) (e.g. bioretention systems, gross pollutant traps) often vary between and within local governments, maintenance contractors, and other organisations involved in their management. Consequently, assessment data may be unreliable and unsuitable for the purposes of comparing the condition and performance of devices. Unfortunately, these data often serve as a basis for advancing important asset management decisions including costly rectification, renewal, and replacement works, the costs for which are normally worn by the public in one way or another.

It is possible that:

1. The scarce public funds allocated to SQID management budgets are being directed towards unnecessary works and away from where they may be better spent; and

2. Money invested may not be leading to realised improvements in the condition and functionality of devices and thus the delivery of their important environmental and other benefits.

It is therefore highly important that we, as an industry, revisit the way we assess the condition, functionality, and risk of failure of SQIDs.

The proposed presentation will introduce a novel, standardised assessment framework that we believe can be applied Australia-wide to address the many shortcomings of existing approaches. The framework draws on the Institute for Public Works Engineering Australasia Practice Notes 5 and will be integrated within an online, cloud-based asset management system (Assetlogue) to minimise the complexity of assessments for end users and streamline the assessment process. The presentation will provide a demonstration of the automated system inside of the Assetlogue mobile app interface including a mock assessment using photos of a bioretention system and gross pollutant trap.

We believe the framework and its implementation in the Assetlogue system could deliver important benefits to the stormwater management industry, including:

- A guided assessment process, meaning assessments can be completed by individuals without a technical understanding of the infrastructure and how it functions;

- Cost-effective and quick assessments that can be conducted during routine maintenance activities (e.g. cleaning and weeding);

- Automated and standardised assessments that reduce opportunities for subjective inputs; and ultimately

- Efficient and reliable collection, storage, and use of data that can be used to guide informed asset management decisions.

It is our belief that the system represents an important step in the journey towards the sustainable management of SQIDs and we hope to share this with the stormwater community in the Conference.