



Adaptive asset management: a pathway to better stormwater management

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Biography:

Ben Penhallurick is an environmental scientist at Renew Solutions Pty Ltd and research student at Griffith University. He has a keen interest in evidence-based management approaches to stormwater and how they may solve many of our current management issues.

Abstract:

In Australia, governments and utilities own and manage infrastructure assets to provide services to their customers (i.e. the public). This includes assets whose management is simple and predictable like footpaths and roads. It also includes assets whose performance, outcomes, and management requirements are complex, highly variable, and not yet fully understood.

An example of a complex asset can be found in bioretention systems. The management of these assets has and continues to be a challenge for governments around Australia. In particular, governments have struggled to keep up with the maintenance required to ensure assets are kept in a good and working condition. It appears that this has been driven by the following.

1. The large amounts of assets handed over to government ownership as part of urban development projects.
2. The often unpredictable performance, outcomes, and management requirements of assets.

It also appears that, by and large, governments don't undertake long-term monitoring on their assets to understand what's required to manage them to ensure they're performing as per design expectations and achieving desired outcomes. That is, management doesn't appear to be evidence-based and guided by an understanding of what's happening with assets in the real world. This lack of evidence-based management may be at least partly responsible for the difficulties in maintaining assets as well as their high failure rates in the real world.

This presentation will introduce the adaptive asset management framework as a potential solution to the above. Adaptive asset management is a framework to support the evidence-based management of complex assets. It is a hybrid framework combining the core principles and processes of infrastructure asset management, used ubiquitously by governments across Australia, and adaptive management, historically used in ecosystem management for conservation purposes. The framework has been conceptualised to overcome some of the issues affecting the management of complex assets like bioretention systems including the following.

1. A lack of evidence-based management owing to the absence of long-term monitoring to evaluate performance, outcomes, and management requirements in the real world.
2. A lack of technology to support evidence-based management.

The presentation will provide an overview of how the adaptive asset management framework could be applied by governments in the context of bioretention systems and other complex stormwater



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assets. It will then present plans for a case study in South East Queensland before concluding with a discussion on the significance of the framework for the stormwater management industry.