

A summary of findings from the collaborative research project:

Long-term performance and willingness to maintain distributed stormwater control measures

Stormwater Control Measures (SCMs) are widely used across the globe to redress the environmental impacts caused by urban development. While the number of SCMs constructed since the mid-2000s has increased rapidly, there are growing concerns that SCMs are not being effectively maintained. Consequently, their long-term performance may be compromised.

Method

Using a mixed methods approach, this study sought to gauge the veracity of concerns regarding the maintenance of SCMs and ascertain the barriers and challenges to their maintenance.

Nine local councils in Victoria were engaged to provide: i) asset condition data for their SCMs, and ii) access to their professional staff to collect perspectives on the barriers and challenges to SCM maintenance. These perspectives were collected through a combination of mail-out questionnaire (54 responses) and interviews (39 participants).

Findings

Condition data analysis triangulated against questionnaire and studies from other jurisdictions indicate that SCMs are indeed commonly being under-maintained. Councils were chosen for the study based on the likelihood of representing 'better practice' Despite this, only three of the participating nine councils were able to provide any condition assessment data for their SCMs. Further, these three councils had collected their data as discrete projects, rather than part of an established formal asset management program.

Analysis of the questionnaire and interview data

identified 55 inter-dependent barriers and challenges across nine socio-technical categories, suggesting that SCM maintenance is a complex multi-causal sociotechnical problem (Figure 1). The analysis concluded that the under-maintenance of SCMs by Victorian local government is symptomatic of complications with its transition towards mainstream adoption. Termed 'Failure to Thrive', it appears that despite the proliferation of SCMs since the mid-2000s, SCMs have not yet successfully transitioned from novel solution to mainstream practice.

Examination of the 55 barriers and challenges



Figure 1: Inductive data analysis revealed multiple barriers and challenges across nine different social and technical categories. These categories reveal three general 'over-arching' issues that appear to be a function of a 'Failure to Thrive' scenario.

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and how respondents tended to link these together ('path-dependencies') identified three over-arching issues contributing to this situation (Figure 1). Three corresponding 'intervention pathways' were developed from these over-arching issues and their associated path-dependencies to address these barriers and enable SCMs to become an accepted, mainstream stormwater solution. These are:

1. An under-developed stormwater industry

The industry that supports stormwater management within Victoria has not yet sufficiently developed, lacking the capacity to support SCM asset management, including maintenance and renewal. As a result, local government is unable to access the expertise it needs to effectively manage their SCMs.

2. The invisibility of SCMs in the community

Refers to the invisibility of SCMs both in the physical landscape and the collective consciousness of the voting public. Unlike other forms of public infrastructure, such as roads, most SCMs may not always show overt signs when their performance drops away. Also, they often appear as gardens or natural waterbodies or may be mostly hidden below ground level and as such they are invisible to the public (who are therefore unlikely to apply political pressure).

3. Government policy inertia

Proposes that state government be encouraged to strengthen policy so that it remains relevant to the changing needs of SCMs as they transition from niche innovation to mainstream practice.

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Intervention pathways

To address the 55 barriers and challenges to SCM maintenance, the research identified three 'intervention pathways'. The pathways (outlined below) are not individual options, but a set of inter-related strategic pathways that need to be addressed in an integrated way, with the third, Policy Realignment, underpinning the other two.

Build Industry Capacity

Shift research and development towards maintenance treatments and long-term performance (longitudinal studies). Use this knowledge to build more informed education and training programs, and transition these programs for specialised short courses to mainstream tertiary undergraduate education programs. Further, make this knowledge available to the industry to develop, improve and formalise industry guidelines, standards, and codes.

Increase SCM Visibility

In addition to community engagement programs, shift policy settings that link the community's expectations concerning waterway and ocean health to the role of SCMs in their protection. This should include a range of soft and hard state government policy settings that raise the importance of SCMs relative to other asset classes within local government. These settings need not be solely associated with waterway protection, but also broader biodiversity and urban liveability outcomes.

Policy Realignment

Provide opportunities for Councils to raise revenue for SCM maintenance independent of rate capping. Improve funding models that include support for long-term performance of SCMs and the effects of different maintenance treatments. Establish funding programs that encourage tertiary education institutions to incorporate SCMs and Integrated Water Management into existing under-graduate programs.

Diversion of funding towards initiatives that encourage collaboration between communities of practice in the development of standards, guidelines and codes that encourage and promote effective SCM maintenance outcomes. Remove any ambiguity concerning responsibilities and accountabilities regarding the protection of natural waterways, particularly between state and local government. This last suggestion includes ensuring those deemed responsible are properly resourced to execute their responsibilities.