

Effective, efficient indicators for monitoring Water Sensitive Urban Design asset performance

Project C3:
SCM Performance

This project will identify cost effective indicators for WSUD performance monitoring, and incorporate them into a novel new "Expert System" for management of WSUD assets

Melbourne Water and our stakeholders invest substantially in stormwater management programs that involve a range of Water Sensitive Urban Design features (e.g. stormwater wetlands, biofilters, rainwater tanks), however, there is a lack of knowledge about the performance and optimal maintenance of these assets. This is largely because it has been considered intensive and costly to effectively monitor WSUD assets.

This project will identify cost effective indicators for WSUD performance monitoring, and incorporate them into a novel new "Expert System" for management of WSUD assets. This system will identify (i) processes to involves stakeholders in the design process likely to ensure future maintenance, (ii) critical maintenance points and 'trigger indicators', (ii) required maintenance frequencies and the factors that can predict them, based on validated deterioration models.

Assoc. Prof. Frederic Cherqui, from INSA Lyon, will work on the project full-time over two years.

Methods

The project will be delivered through several work packages:

- **Development of a comprehensive monitoring plan.** The objective is to implement a monitoring strategy on the Australian case study, covering a wide range of stormwater control measures, applied at a range of scales.

- **Provide a consolidated evidence-based management framework (expert system) for asset management requirements.** The objective is to provide a consolidated and user-friendly support system for operation and long-term maintenance of SCMs.
- **Enabling the replication and upscaling of the Expert System.** The objectives are to apply the Expert System to several councils around Melbourne (in partnership with Melbourne Water) and also in the Metropolis of Lyon (France). Subsequently, this will result in the upscaling of the Expert system for other European cities
- **Transfer of knowledge / training program.** The objectives are to deliver appropriate transferable skills; the aim is to ensure that the skills obtained during the project in Australia are brought back to France and can contribute to longer-term progress in this field in the European Union

Outcomes

This project will aim to develop a new asset management framework – **Mind4Stormwater**. The new framework will be piloted with Melbourne Water and then later deployed in France and the European Union.

This project links very closely with Project BS:ConstructedWetlands, in that it will help to determine suitable indicators of performance and deterioration.

Project Team:

University of Melbourne

Tim Fletcher

Frederic Cherqui

Darren Bos

Melbourne Water

Alison Rickard

Micah Pendergast

Michael Flanagan

Rachelle Adamowicz

Andrew Camenzuli

Birgit Jordan