

Project Summary

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

There is a need to increase the monitoring of Stormwater Control Measures (SCMs) to improve the knowledge of their performance and deliver cost-effective Operation & Maintenance. This project will identify cost effective indicators for SCM performance monitoring, and incorporate them into a novel new "Expert System" based on low-cost monitoring. The objective is not just to decrease the monitoring costs, it is to re-think objectively the possibilities offered by new monitoring technologies: lower cost, lower power consumption, enhance communication capabilities, open-source and high modularity.

Methods & outcomes

The project has and will continue to delivered through several work packages:

- **Development of a comprehensive monitoring plan.** The objective is to implement a monitoring strategy covering a wide range of SCMs and applied at a range of scales. As water level has been identified as the key parameter for SCMs, this indicator has been prioritized in the monitoring strategy. Some key points have been successfully experimented: real-time monitoring with data saved locally and online, "monitoring of the monitoring" with emails alert based on predefined triggers (water level, battery voltage, etc.), and communication through GSM network or LoRa network.
- **Provide a consolidated evidence-based management framework (expert system) for asset management requirements.** The objective is to provide a con-

solidated and user-friendly support system for operation and long-term maintenance of SCMs. Two online platforms have been installed. A private platform is dedicated to the utility manager in order to access real-time data, define trigger alert and interact with the monitoring system. A public platform (see URL below) enables real-time access to the data for other departments or a wider public, with possibilities to display charts or download data. The emphasis will now be put on assessing accurately the performance of different kind of low-cost sensors and recommend sensors for different applications.

- **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. Low-cost monitoring system will continue to be tested in different configuration and location to consolidate the findings.
- **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.

URL: mind4stormwater.online

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